

ABWP Phase I Decommissioning

Appropriate Assessment Screening Report

ABWP Phase I Decommissioning



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Glossary

Term	Meaning
Arklow Bank Wind Park (ABWP) Phase I	Arklow Bank Wind Park (ABWP) Phase I comprises: - Offshore infrastructure seaward of High Water Mark (HWM), including: - Seven Wind Turbine Generators (WTG) with a combined capacity of 25.2 MW; - One meteorological (met) mast; and - One offshore export cable and inter-array cables connecting the WTGs and met mast; - Onshore infrastructure landward of HWM including: - One onshore cable; and - One onshore substation.
ABWP Phase II	ABWP Phase II comprises: - Offshore Infrastructure, including: 56 or 47 WTGs; - Two Offshore Substation Platforms (OSPs); - Two offshore export cables and inter-array cables connecting WTGs with the OSPs. - Onshore Grid Infrastructure; - Operations and Maintenance Facility (OMF); - EirGrid Upgrade Works.
Additional mitigation	Actions that will be required to reduce the significance of environmental effects of the Proposed Works, which will be dependent on the significance of effects assessed in the EIAR. Also referred to as secondary mitigation in Institute of Environmental Management and Assessment (IEMA) (2024).

Term	Meaning
Alternatives	A description of other options that have been considered during the conception of the Proposed Works (Environmental Protection Agency (EPA), 2022).
Appropriate Assessment (AA)	An assessment of the potential adverse effects of the Proposed Works (in combination with other plans or projects) on Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which are protected by national and European law (EPA, 2022).
AA screening	A process undertaken by the competent authority to determine the need for an AA under the Habitats Directive (MDB, 2017).
Aspect	Refers to environmental aspect(s) used to present the characteristics of the environment, also referred to as environmental factors (EPA, 2022) that are used to organise the description of the environment in the EIAR.
Baseline	A description of the relevant aspects of the current state of the environment (baseline scenario) (EIA Directive 2014/52/EU).
Compensatory measures	All measures referred to in Article 6(4) of the Habitats Directive that are necessary to ensure that the overall coherence of the Natura 2000 network is protected. In the absence of alternatives, and for imperative reasons of overriding public interest (IROPI), a plan or project may proceed, see IROPI below. In Ireland, they shall be construed in accordance with the Planning and Development Act, 2000, as amended S.177W(7) in relation to making land use plans and in accordance with S.177AA(8) in relation to granting permission for proposed development (MacCabe Durney Barnes (MDB), 2017).
Competent authority	Minister or public authority to which an EIAR is required to be submitted, i.e. the authority charged with examining an EIAR with a view to issuing a consent to develop or operate (EPA, 2022). The competent authority for this planning application is An Coimisiún Pleanála (ACP).
Consent	This shall include any licence, permission, permit, approval or other such authorisation granted by a public authority for any activity, or project where the authority is obliged to have regard to the requirements of the Environmental Impact Assessment (EIA) and/or Habitats Directive(s) (MDB, 2017).
Conservation objectives	When a European site is proposed, a statement of its conservation objectives is produced which identifies the qualifying interests or conservation features for which the site is designated. The objectives also include such particular objectives as the Minister for Arts Heritage, Regional Rural and Gaeltacht Affairs may from time to time establish for these purposes under Regulation 26 of the European Commission (EC) (Birds and Natural Habitats) Regulations 2011 (MDB, 2017).
Cumulative effect	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects (EPA, 2022).
Cumulative effects assessment	Assessment of potential significant effects resulting from the Proposed Works cumulatively with other plans, projects or reasonably foreseeable activities.
Decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life (EPA, 2022).
Designated sites	Unless otherwise specified, the term 'designated' is used to refer to international sites, European sites and national sites (that are legally designated, or are going through the process of designation (MDB, 2017).
Effect	The consequence of an impact on a receptor. For example, in the offshore environment, vessel activity (activity) results in increased levels of underwater noise (impact), with the potential to disturb marine mammals (effect).
Design measures	Measures included as part of the Proposed Works. Include modifications arising through the iterative design process; and standard industry practice that would occur even without input from the EIA process, e.g. actions undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. Correspond to primary and tertiary mitigation defined in IEMA (2024).
Environmental Impact Assessment (EIA)	The process of examining the anticipated environmental effects of the Proposed Works – from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, and the subsequent

Term	Meaning
	decision as to whether the Proposed Works should be permitted to proceed, encompassing public response to that decision (EPA, 2022).
EIA Scoping	Scoping stage provides an opportunity for both Developers and the Competent Authority to determine those key environmental impacts and issues of concern that are likely to be of the utmost importance to the Project proposal's decision-making and eliminates those that are less of a concern (European Commission (EC), 2017).
Environmental Impact Assessment Report (EIAR)	A report or statement of the effects, if any, that Proposed Works, if carried out, would have on the environment (EPA, 2022).
European site	Candidate SACs and proposed SPAs and adopted SACs and SPAs. SACs and SPAs are the Natura 2000 European Network designations in Ireland, defined in S.177R of the Planning and Development Act 2000, as amended (MDB, 2017).
Foreshore	The bed and shore below the line of high water of ordinary or medium tides of the sea, and of every tidal river and tidal estuary, and of every channel, creek, and bay of the sea, or of any such river or estuary to the outer foreshore as defined in the Foreshore Act, 1933 as amended. The foreshore commences at high water of ordinary or medium tides; its outer limit is 12 nautical miles (nm) from the baseline referred to in Section 85 of the Sea-Fisheries and Marine Jurisdiction Act 2006 (MDB, 2017).
High Water Mark (HWM)	Level reached by the sea level at high tide.
Impact	A change brought about by the Proposed Works.
In-combination effects	Effects resulting from a combination of effects resulting from two or more plans and/or projects assessed as required under the Habitats Directive (MDB, 2017).
Indirect impact	Impacts on the environment, which are not a direct result of the Project, often produced away from (the site) or as a result of a complex pathway (EPA, 2022).
Inter-related effects	Effects that may arise from the interactions between different environmental aspect effects, potentially leading to more significant effects than if they were to be considered in isolation.
Intertidal	The area between the HWM and the Low Water Mark (LWM).
Imperative Reasons of Overriding Public Interest (IROPI)	Where a development is likely to have adverse effects upon the integrity of a European site, or where adverse effects cannot be ruled out, and in the absence of suitable alternative solutions, the competent authority may grant consent where a project is considered to be necessary for IROPI. The Habitats Directive does not define what is meant by IROPI. European Union (EU) guidance is helpful in making an IROPI determination. Irish statute narrowly defines IROPI in relation to AA determined effects on European sites that host a priority natural habitat type or priority species at S.177AA(4) of the Planning and Development Act, 2000 (MDB, 2017).
Landfall	The point where the offshore export cable transitions from the offshore marine environment to the onshore terrestrial environment.
Low Water Mark (LWM)	Level reached by the sea at low tide.
Mitigation measures	Measures to avoid, prevent or reduce impacts (EPA, 2022). Distinction is made between embedded and additional mitigation, see separate definitions for these.
Monitoring	The observation, measurement and evaluation of environmental data to follow changes over a period of time, to assess the efficiency of control measures and to record any unforeseen effects in order to be able to undertake appropriate remedial action. This is typically a repetitive and continued process carried out during construction, operation or decommissioning of a project (EPA, 2022).
Natura 2000 network	An EU-wide network of important ecological sites. Natura 2000 sites in Ireland are European sites, including candidate SACs and proposed SPAs and adopted SACs and SPAs (MDB, 2017).
Natura Impact Statement (NIS)	The report of a scientific examination of a plan or project and the relevant European site(s), to identify and characterise any possible implications from the plan or project for the site in view of the site's conservation objectives, so that a consent authority may carry out an AA (MDB, 2017).

Term	Meaning
Nautical mile (nm)	Measurement used for distances at sea. 1nm equates to 1.852km. Marine jurisdiction is determined by reference to nautical miles (MDB, 2017).
Pathway	The route by which an effect is conveyed between a source and a receptor (EPA, 2022).
Planning application	The application for consent submitted to An Coimisiún Pleanála (ACP) under s291 of the Planning and Development Act 2000, as amended.
Proposed Works	The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore). Proposed Works are described in detail in Volume 2, Chapter 3: Proposed Works Description of the EIAR.
Precautionary principle	The approach aims at ensuring a higher level of environmental protection through preventative decision-taking in the case of risk. The general principles of risk management remain applicable when the precautionary principle is invoked. These are proportionality between the measures taken and the chosen level of protection; non-discrimination in application of the measures; consistency of the measures with similar measures already taken in similar situations or using similar approaches; examination of the benefits and costs of action or lack of action; review of the measures in the light of scientific developments (MDB, 2017).
Qualifying Features	In Ireland, habitats and/or species which are the reason(s) for the designation of an SAC are referred to as 'Qualifying Interests' (QIs). For SPAs, bird species and their habitats which are the reason for a particular site designation are referred to as 'Special Conservation Interests' (SCIs). In this AA Screening Report, QIs and SCIs are together referred to as qualifying features.
Receptor	Any element in the environment which is subject to impacts (EPA, 2022).
Residual effect	The final predicted effect / impact remaining after mitigation (EPA, 2022).
Sensitivity	The potential of a receptor to be significantly affected (EPA, 2022).
Significance	The importance of the outcome of the impact (or the consequence of change) for the receiving environment (EPA, 2022).
Source	The activity or place from which an effect originates (EPA, 2022)
Zone Of Influence (ZoI)	The potential geographic area that could be affected by the implementation of the Proposed Works. The ZoI should be regarded as having flexible boundaries which may change during the assessment. The boundaries are determined having regard to the source-pathway-target risk assessment concept.

Acronyms

Acronym	Meaning
AA	Appropriate Assessment
ABWP	Arklow Bank Wind Park
ACP	An Coimisiún Pleanála
CEA	Cumulative Effect Assessment
cSACs	candidate SACs
DaS	Dumping at Sea
DCEE	Department of Climate, Energy and the Environment
DEMP	Decommissioning Environmental Management Plan
DP	Dynamic positioning
EC	European Commission
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency

Acronym	Meaning
ESB	Electricity Supply Board
EU	European Union
EVMP	Ecological Vessel Management Plan
FMMS	Fisheries Management and Mitigation Strategy
IAMMWG	Inter Agency Marine Mammal Working Group
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive non-native species
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LAT	Low astronomical tide
MAC	Maritime Area Consents
MARA	Maritime Area Regulatory Authority
MBES	Multi-beam echo sounder
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMMU	Marine Mammal Management Unit
MSFD	Marine Strategy Framework Directive
NE	Natural England
NIEA	Northern Ireland Environment Agency
NIS	Natura Impact Statement
NMFS	National Marine Fisheries Service
O&M	Operations and Maintenance
OMF	Operations and Maintenance Facility
OPR	Office of the Planning Regulator
OSP	Offshore Substation Platform
pSPAs	proposed SPAs
PTS	Permanent Threshold Shift
QI	Qualifying Interests
SAC	Special Area of Conservation
SBP	Sub-bottom profiling
SCI	Special Conservation Interests
SEL	Sound exposure level
SNCBs	Statutory nature conservation bodies
SPA	Special Protection Area
SPL	Sound pressure level
SSC	Suspended Sediment Concentration
SSS	Side Scan Sonar
TTS	Temporary Threshold Shift
USBL	Ultra-short baseline
WMP	Waste Management Plan

Acronym	Meaning
WTG	Wind Turbine Generators
ZoI	Zone of Influence

Units

Unit	Meaning
dB	Decibel
Hz	Hertz
kHz	Kilohertz
km	Kilometre
nm	Nautical mile

1 Introduction

1.1 Overview

- 1.1.1.1 Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park (ABWP) Phase I (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
- 1.1.1.2 The Proposed Works Offshore and Onshore will take place within the Offshore and Onshore sites respectively, with site boundaries shown in **Figure 1.1**. The location of offshore and onshore infrastructure within site boundaries is presented in more detail in **Sections 3.1** and **4.1**.
- 1.1.1.3 This Appropriate Assessment (AA) Screening Report aims to identify any potential effects on European sites as a result of the Proposed Works and assist the planning authority, An Coimisiún Pleanála (ACP), in determining whether a Stage 2 AA is required, and if so, which European sites, and associated habitats and species should be included in the AA for the Proposed Works.
- 1.1.1.4 This AA Screening Report has been prepared in parallel to the Environmental Impact Assessment Report (EiAR) prepared in support of the planning application for Proposed Works.

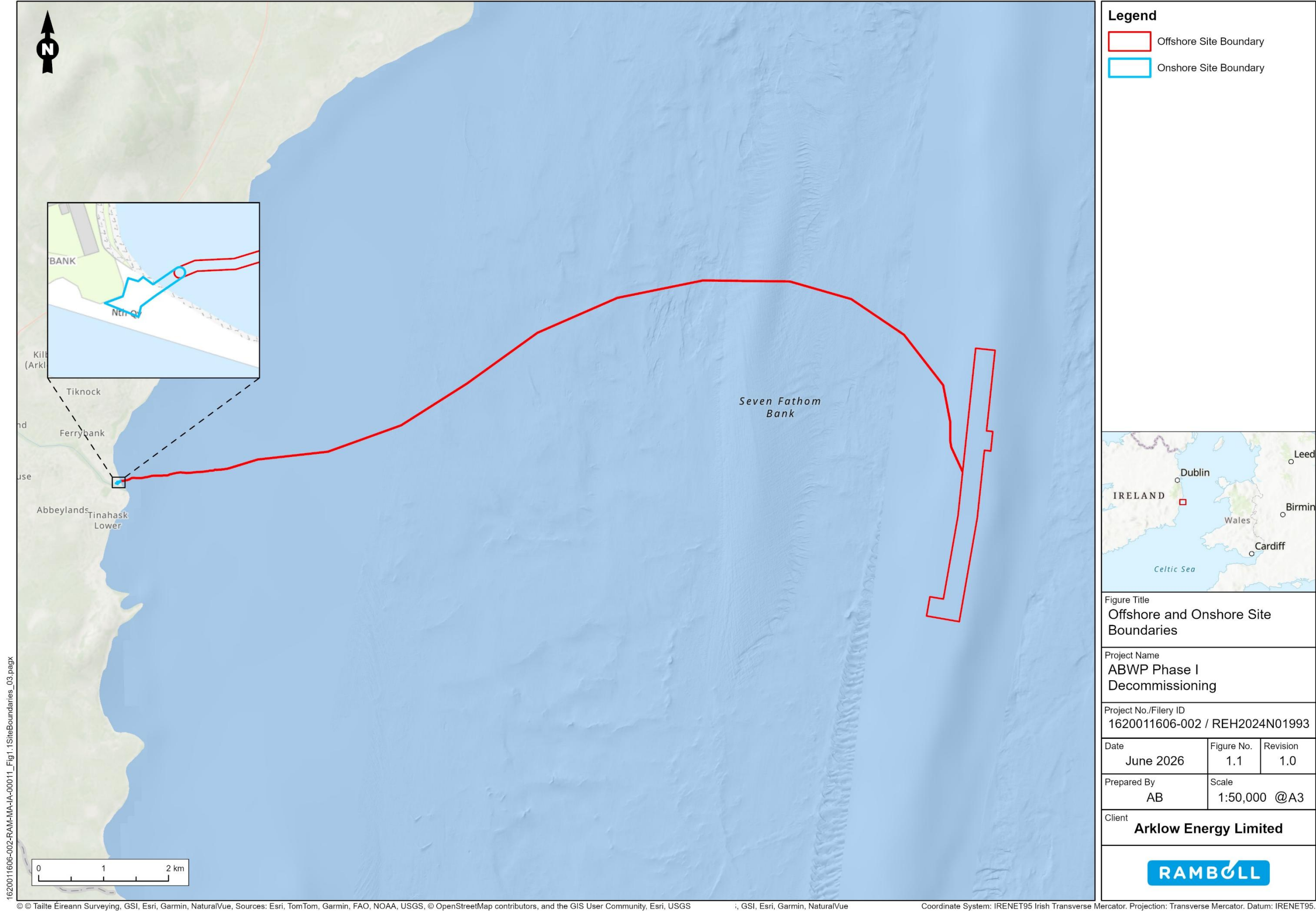


Figure 1.1: Offshore and Onshore Site boundaries

1.2 Legislative Background

- 1.2.1.1 The European Union (EU) Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') requires that Member States contribute to the creation of a coherent ecological network of sites through the identification and designation of Special Areas of Conservation (SACs), including candidate SACs (cSACs), relating to habitats and species listed in Annex I and Annex II of the Habitats Directive respectively. The EU Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') requires the protection of bird species listed in Annex I of the Birds Directive, and of regularly occurring migratory bird species and their habitats, including through the designation of Special Protection Areas (SPAs), including proposed SPAs (pSPAs).
- 1.2.1.2 SACs and SPAs are referred to as European sites and are collectively part of the Natura 2000 network, comprising a network of areas of highest biodiversity importance for rare and threatened habitats and species across the EU.
- 1.2.1.3 In Ireland, habitats and/or species which are the reason(s) for the designation of an SAC are referred to as 'Qualifying Interests' (QIs). For SPAs, bird species and their habitats which are the reason for a particular site designation are referred to as 'Special Conservation Interests' (SCIs). In this AA Screening Report, QIs and SCIs are together referred to as qualifying features.
- 1.2.1.4 Article 6(3) of the Habitats Directive requires that, "Any plan or project not directly connected with or necessary to the management of the (European) site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the (European) site in view of the (European) site's conservation objectives. In the light of the conclusions of the assessment of the implications for the (European) site and subject to the provisions of paragraph 41, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the (European) site concerned and, if appropriate, after having obtained the opinion of the general public."
- 1.2.1.5 Article 6(2) provides an initial two-stage process (see **Section 2**):
 - Screening for AA to identify the need for an AA; and
 - AA, only applicable if screening for AA concludes that an AA is required.
- 1.2.1.6 For the purposes of applications for planning permission in Ireland, Part XAB of the Planning and Development Act 2000 (as amended), transposes the obligations under the Habitats and Birds Directives into Irish law.

2 Methodology

2.1 Overview of Appropriate Assessment Process

2.1.1.1 Article 6 of the Habitats Directive establishes a step-wise procedure to undertake an AA, as illustrated in **Figure 2.1**. This is further described in European Commission (EC) guidance (EC, 2001; 2019; 2020; 2021), as well as in Irish guidance (Department of the Environment, Heritage and Local Government, 2009; MDB, 2017; Office of the Planning Regulator (OPR), 2021) and summarised in this section.

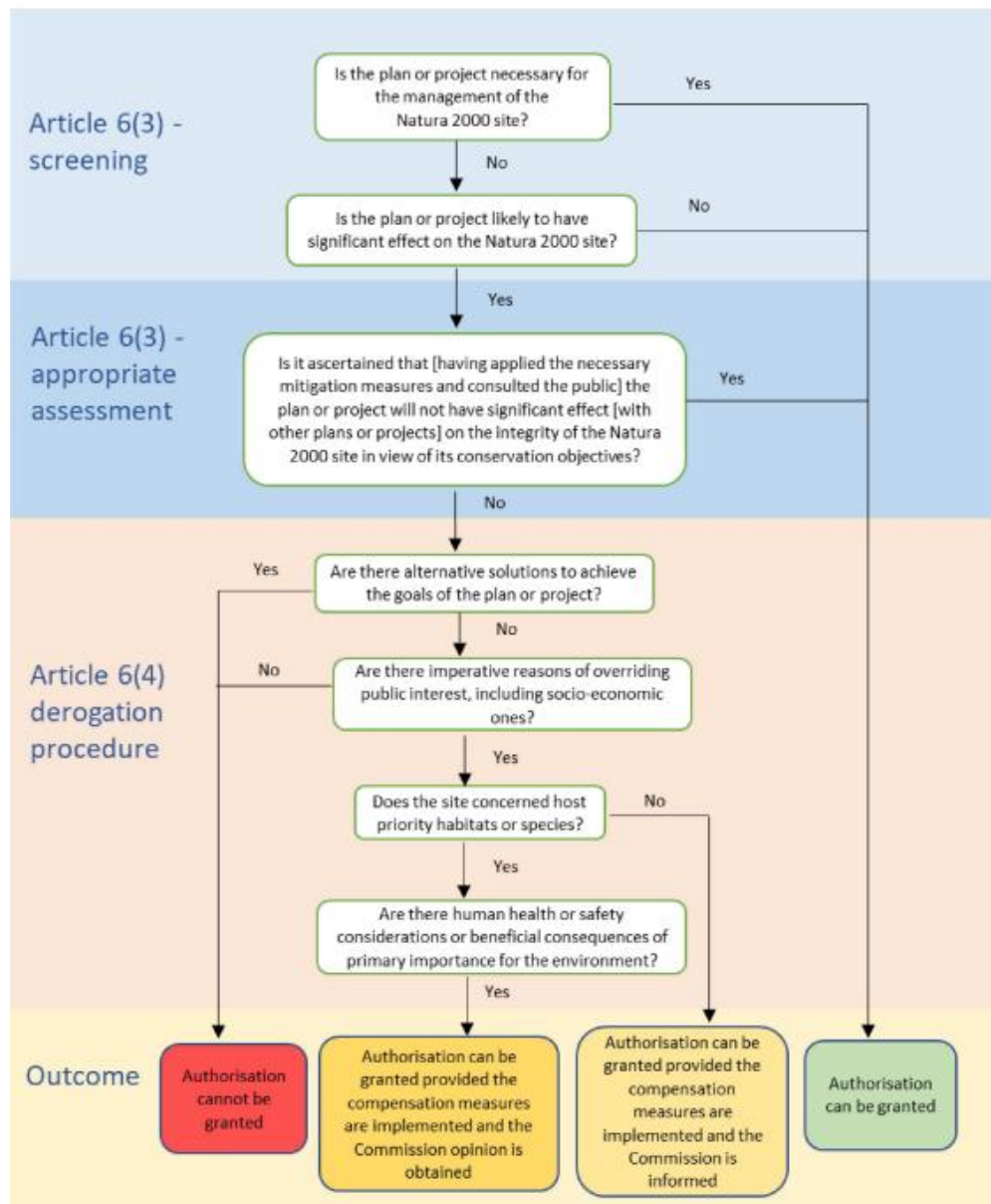


Figure 2.1: Appropriate Assessment process

Source: EC (2021)

2.1.2 Stage 1 – Screening

2.1.2.1 The first stage in the AA process is to determine whether an AA is required, which is determined through 'screening'. This step is used to address and record the reasoning and conclusions on whether, firstly, the plan or project is directly connected with, or necessary to, the management of any given European site, and secondly, whether it is likely to have a significant effect on a European site, either alone or in combination with other plans or projects.

2.1.2.2 Screening involves the following stages:

- ascertaining whether the plan or project is directly connected with or necessary to the management of a European site;
- identifying the relevant elements of the plan or project and their likely impacts;
- identifying which (if any) European sites may be affected, considering the potential effects of the plan or project alone or in combination with other plans or projects; and
- assessing whether Likely Significant Effects on the European site can be ruled out, in view of the European site's conservation objectives (COs).

2.1.2.3 Screening should be undertaken without the inclusion of project-specific mitigation measures, also referred to as 'additional mitigation', i.e. actions required to reduce the significance of environmental effects of a given project. However, as noted in EC (2021) guidance, applicants can design projects in a way to avoid or minimise potential impacts from the outset, which can be done by using best available technologies or by applying pre-emptive measures, including statutory measures (e.g. no-go zones) prescribed, and that such generic components can be considered in screening. In this AA screening report, these are referred to as "design measures".

2.1.2.4 Where significant effects are likely, uncertain or unknown at screening stage, then the process must proceed to Stage 2 (AA). The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact, requiring evidence that no reasonable scientific doubt remains.

2.1.2.5 As per section 177U(2), Part XAB of the Planning and Development Act 2000 (as amended) "The Competent Authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European Site". At the same time, section 177U(5) indicates that "The Competent Authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is not required if it can be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European Site".

2.1.2.6 According to EC (2021) guidance, 'in combination' screening requires the identification of other plans and projects that can have potential effects on the same European sites and then the assessment of their capacity to cause significant effects when considered together with the plan or project under assessment. This is because a series of individually low-level impacts may, in combination, produce a significant impact.

2.1.2.7 In line with existing Irish guidance (MDB, 2017), "in-combination effects" referred to in the Habitats Directive are considered to have a similar meaning to "cumulative effects" in the Environmental Impact Assessment (EIA) Directive, i.e. addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects (EPA, 2022).

2.1.2.8 **Volume 2, Chapter 1: Introduction** of the EIAR describes the methodology followed in the assessment of potential cumulative effects, also adopted in the in-combination screening presented in this AA Screening Report, which, in summary, comprises:

- **Stage 1: Establish the long list of other developments to consider**, based on the location of other plans and projects located within the maximum Zone of Influence (ZoI) of Proposed Works, classified into different plan / project types, status categories and 'tiers', according to the level of information publicly available about them:
 - Tier 1 (developments under construction; permitted applications but not yet implemented; submitted applications but not yet determined; and all refusals subject to appeal procedures not yet determined);
 - Tier 2 (developments associated with approved programmes where a scoping report has been submitted and is in the public domain); and
 - Tier 3 (developments associated with approved programmes where a scoping report has not been submitted; developments identified in relevant / emerging development plans; and developments identified in other plans and programmes, as appropriate, which set the framework for future development consents or approvals, where such development is reasonably likely to come forward).

- **Stage 2: Establish the short list of other developments to consider**, gathering key information publicly available and applying screening criteria to establish the short list of developments for consideration in the AA Screening Report.

The shortlisting process (stages 1 and 2) is further detailed and documented in **Volume 3, Appendix 1.2: Cumulative Screening** of the EIAR with clear justifications provided for inclusion or exclusion of developments.

- **Stage 3: Information gathering.** Gathering of additional publicly available information on the following aspects of other developments to inform the assessment of in-combination effects:
 - The proposed design and location;
 - The proposed programme of construction, O&M and decommissioning;
 - Environmental assessments that set out baseline data and effects arising from other existing and, or approved development.
- **Stage 4: Assessment.** Where possible, the methodology for assessing cumulative effects aligns with that used for evaluating the effects of the Proposed Works alone, ensuring consistency and facilitating relevant comparisons.

2.1.3 Stage 2 – Appropriate Assessment (if required)

- 2.1.3.1 The second stage in the AA process involves considering the impact of a project or plan alone and in-combination with other projects or plans on the integrity of a given European site with respect to its COs and to its structure and function. In Ireland, data and information on the project and on the site and an analysis of potential effects on a given European site must be obtained and presented by the applicant in a Natura Impact Statement (NIS).
- 2.1.3.2 Where an AA is required, section 177V, Part XAB of the Planning and Development Act indicates that an AA shall include a determination by the competent authority as to whether a draft land use plan or proposed development would adversely affect the integrity of a European site. As per section 177V(2) "in carrying out an appropriate assessment under subsection (1) the Competent Authority shall take into account each of the following matters:
- (a) the Natura impact report or Natura impact statement, as appropriate;
 - (b) any supplemental information furnished in relation to any such report or statement;
 - (c) if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura impact statement;
 - (d) any additional information furnished to the Competent Authority at its request in relation to a Natura impact report;
 - (e) any information or advice obtained by the Competent Authority;
 - (f) if appropriate, any written submissions or observations made to the Competent Authority in relation to the application for consent for proposed development; and
 - (g) any other relevant information."
- 2.1.3.3 The NIS should therefore provide information to enable the competent authority to carry out the AA, including information on the plan or project, its location, extent and receiving environment, the Natura 2000 sites, their COs and ecological and environmental sensitivities, and the likely or potential effects of the plan or project. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 3, or the plan or project should be abandoned.

2.1.4 Stage 3 – Alternative Solutions

- 2.1.4.1 The third stage examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a European site. The process must return to Stage 2 as alternatives will require AA to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, is necessary to progress to Stage 4.

2.1.5 Stage 4 – Imperative Reasons of Overriding Public Interest / Derogation

- 2.1.5.1 Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site to proceed in cases where it has been established that no less damaging alternative solution exists.
- 2.1.5.2 The extra protection measures for Annex I priority habitats come into effect when making the IROPI case, in which case compensatory measures, required to be practical, implementable, likely to succeed, proportionate and enforceable, must be proposed and assessed, subsequently approved by the Minister and shared with the EC for information.
- 2.1.5.3 Section 177W of Part XAB of the Planning and Development Act regulates the process for invoking IROPI.

3 Offshore

3.1 Proposed Works Offshore

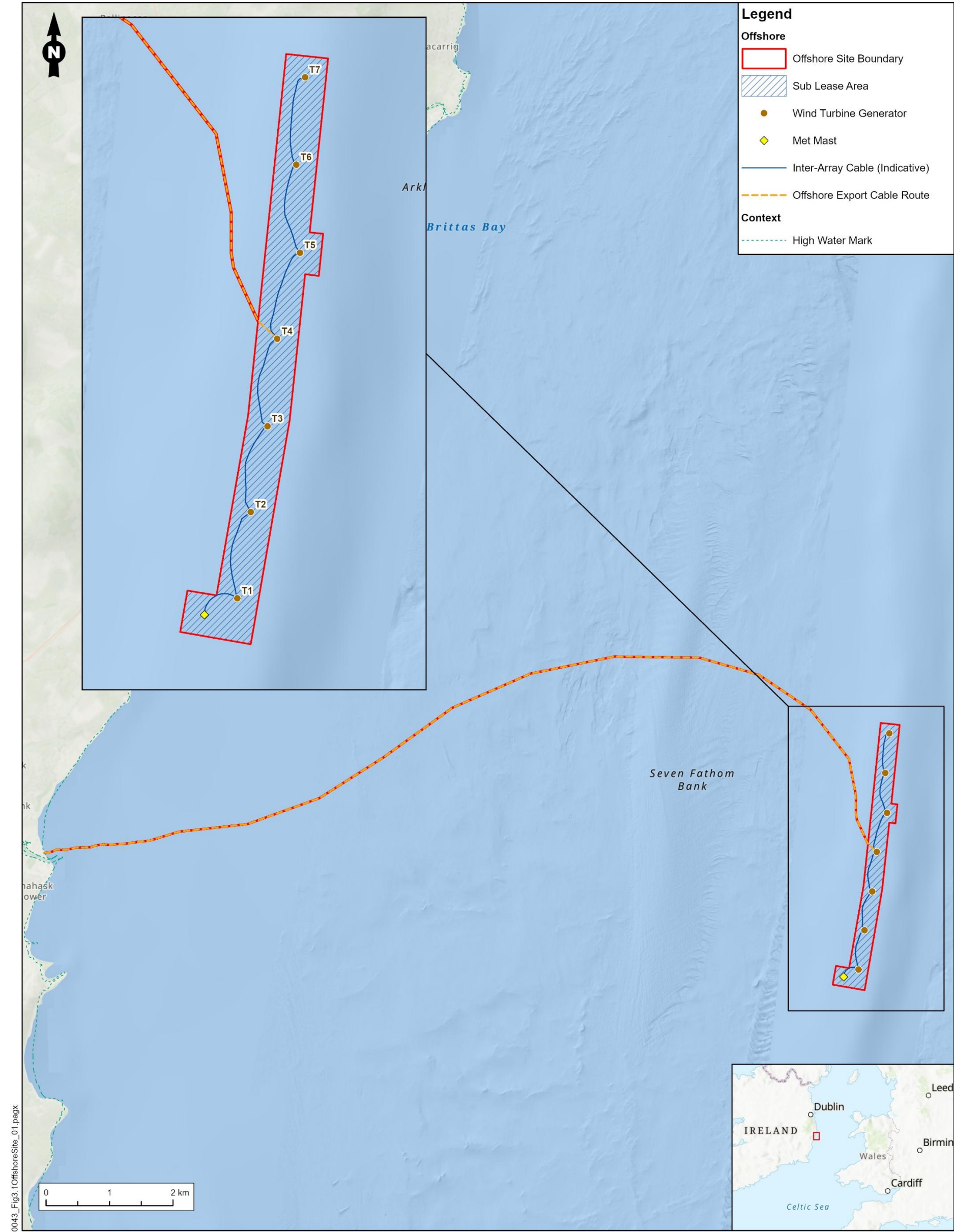
3.1.1.1 This section describes the location and characteristics of the decommissioning of offshore infrastructure (the Proposed Works Offshore) for the purposes of the AA screening process.

3.1.2 Location of the Offshore Site

3.1.2.1 The Proposed Works Offshore will be undertaken within the Offshore Site (**Figure 3.1**), which includes:

- The Sub Lease Area, located on the long narrow Arklow Bank sand bank, situated approximately 10 km off the coast of Arklow, south-east Ireland, where wind turbine generators (WTGs) and associated scour protection, inter-array cables and met mast are located; and
- A 10 m cable corridor along the export cable route connecting T4 to the landfall point at High Water Mark (HWM).

3.1.2.2 For the purposes of the AA screening process, the Offshore Site boundary has been defined as the Sub Lease Area and a 10 m corridor centred along the offshore export cable route, up to HWM, which corresponds to the areas where the Proposed Works Offshore will take place.



1620011606-002-RAM-MA-IA-00043_Fig3.1OffshoreSite_01.pagx

Figure Title Offshore Site		Project No./Filery ID 1620011606-002 / REH2024N01993			Client Arklow Energy Limited	
		Date June 2026	Prepared By AB			
Project Name ABWP Phase I Decommissioning		Scale 1:53,000 @A3		Figure No. 3.1	Revision 1.0	

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Coordinate System: IRENET95 Irish Transverse Mercator. Projection: Transverse Mercator. Datum: IRENET95.

Figure 3.1: Offshore Site

3.1.3 Offshore Site Description

- 3.1.3.1 The 2025 bathymetry survey recorded seabed levels between -1.1 m and -12.75 m Lowest Astronomical Tide (LAT) within the Sub Lease Area, with individual monopile (MP) foundations located in depths ranging between -3.21 m and -6.49 m LAT. The offshore export cable is laid in seabed levels ranging between -3.94 m and -33.08 m LAT. **Figure 3.2** and **Figure 3.3** indicate potential dredging areas and bathymetry within the Offshore Site.
- 3.1.3.2 The substratum on the Arklow Bank sand bank is largely characterised by mobile sandy sediment with some coarser sediment and cobbles to the east and north. Closer to the Arklow Harbour, the substratum has been reported to be muddy sand (**Volume 2, Chapter 4: Coastal Processes, Water and Sediment Quality** of the EIAR).
- 3.1.3.3 The Sub Lease Area is located in an exposed open water location that can experience extreme maximum wave heights of 5.1 m, generated by southerly winds. The shallow water on the Arklow Bank can produce turbulent sea conditions particularly at the exposed edge of the sand bank. The Sub Lease Area is subject to very strong currents with evidence of sand transport northwards on the landward side of the bank and southwards on the seaward side of the bank, with tidal and littoral currents moving clockwise around the bank (**Volume 2, Chapter 4** of the EIAR). The western side of the bank erodes on the ebb tide and accretes on the flood; with the reverse occurring on the eastern side of the bank. The net result is that the sand bank itself remains relatively stable (**Volume 2, Chapter 4** of the EIAR).
- 3.1.3.4 During site-specific sediment sampling within a MP undertaken in 2025 (see **Volume 3, Appendix 4.4: Sediment Sampling Results** of the EIAR), sediments were tested for presence of metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) and polycyclic aromatic hydrocarbons (PAHs). None of the sediment samples were found to contain contaminants at concentrations which exceeded the lower levels of sediment quality guidelines outlined in Guidelines for the Assessment of Dredge Material for Disposal in Irish Waters (Cronin *et al.*, 2006; 2019).
- 3.1.3.5 Similarly, a sediment sampling campaign undertaken within the Sub Lease Area in 2016 (see **Volume 3, Appendix 4.4** of the EIAR) and ABWP Phase II benthic characterisation (Aquafact, 2025) tested surface sediments for presence of metals (mercury, arsenic, cadmium, copper, lead, zinc, chromium, nickel, lithium, aluminium) and a number of other contaminants, including organochlorines, polychlorinated biphenyls, hydrocarbons, tributyltin, dibutyltin and PAH. None of the sediment samples were found to contain contaminants at concentrations which exceeded the lower levels of sediment quality guidelines outlined in Guidelines for the Assessment of Dredge Material for Disposal in Irish Waters (Cronin *et al.*, 2006; 2019).
- 3.1.3.6 Post-construction benthic surveys have shown the seabed within the Offshore Site to be predominately sediment based with little or no fixed hard substrata recorded (Aquafact, 2025). Species diversity was highest in areas of sandy shell, gravel and cobbles in the north-west, south-west and south-east of the Sub Lease Area and along the offshore export cable route. Communities associated with sandy sediments were found to be characteristic of mobile shallow sand banks.
- 3.1.3.7 Surveys conducted within the Sub Lease Area and surrounding waters (up to 5 km from the Offshore Site) between 2000 and 2009, and monthly aerial surveys between 2018 and 2020, recorded the regular presence of a number of breeding, migratory and wintering seabird species, including large numbers of kittiwake (*Rissa tridactyla*), razorbill (*Alca torda*), common guillemot (*Uria aalge*), red-throated diver (*Gavia stellata*), little gull (*Hydrocoloeus minutus*), Manx shearwater (*Puffinus puffinus*) and common gull (*Larus canus*); as well as presence of storm petrel (*Hydrobates pelagicus*), Mediterranean gull (*Larus melanocephalus*) and four species of tern (sandwich tern (*Sterna sandvicensis*), roseate tern (*Sterna dougallii*), Arctic tern (*Sterna paradisaea*) and common tern (*Sterna hirundo*)) among others (APEM, 2026). A baseline vantage point (VP) survey of wintering seabirds, on the coastline between Arklow Pier and Johnstown North, County Wicklow, was undertaken between 2019 and 2020 (APEM, 2026). The coastline bird assemblage was dominated by common gull, black-backed gull (*Larus marinus*) and a small number of common guillemot, red-throated diver and cormorant (*Phalacrocorax carbo*) (APEM, 2026).
- 3.1.3.8 The most common marine mammal species likely to be present in the Offshore Site include harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*), short-beaked common dolphin (*Delphinus delphis*), grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*) (Waggitt *et al.*, 2019; Giralt Paradell *et al.*, 2024; Gilles *et al.*, 2023; Evans and

Waggitt, 2023; APEM, 2026; see **Volume 2, Chapter 5: Marine Biodiversity**). Waters off the coast of Wicklow and south of Arklow are considered to be particular hotspots for harbour porpoise activity (Giralt Paradell *et al.*, 2024).

- 3.1.3.9 Harbour seal and grey seal are also considered to have hotspots around Wexford and Dublin due to the presence of haul-out sites (Morris and Duck, 2019) and could be present in proximity of the Offshore Site. Furthermore, vantage point surveys conducted between June to November 2025 at the ABWP Phase II landfall site (approximately 7 km north of the Offshore Site) recorded a total of 30 individual grey seals, with ten of these individuals observed hauling out at the ABWP Phase II proposed landfall site (APEM, 2026). However, overall presence of grey seals during the ABWP Phase II surveys from June to November 2025 was still considered relatively low and suggested low usage of the wider offshore area by grey seals (APEM, 2026).
- 3.1.3.10 Although Risso's dolphin (*Grampus griseus*), and minke whale (*Balaenoptera acutorostrata*) are also commonly found in Irish waters, marine mammal surveys within the Offshore Site and wider area, indicate a lower frequency and abundance in comparison to Ireland's west coast, suggesting the site is not a key area for these species (APEM, 2026). Furthermore, there are no designated sites located in the direct vicinity of the Offshore Site, with the closest designated site for marine mammals located over 13 km to the southwest (see **Section 3.2**).
- 3.1.3.11 Waters off the coast of Wicklow, beyond the Offshore Site, are considered important as a nursery and spawning area for several species of fish, including for elasmobranch species such as the tope shark (*Galeorhinus galeus*) and thornback ray (*Raja clavata*) (Coull *et al.*, 1998; Ellis *et al.*, 2012; Department of Climate, Energy and the Environment, 2026). However, the fish community in the Sub Lease Area is characteristic of demersal coastal communities of sand bank habitats, including plaice (*Pleuronectes platessa*) and sole (*Solea solea*) (APEM, 2026). There are no spawning grounds for sensitive demersal spawners such as herring (Department of Climate, Energy and the Environment, 2026) or sandeel (Ellis *et al.*, 2012).

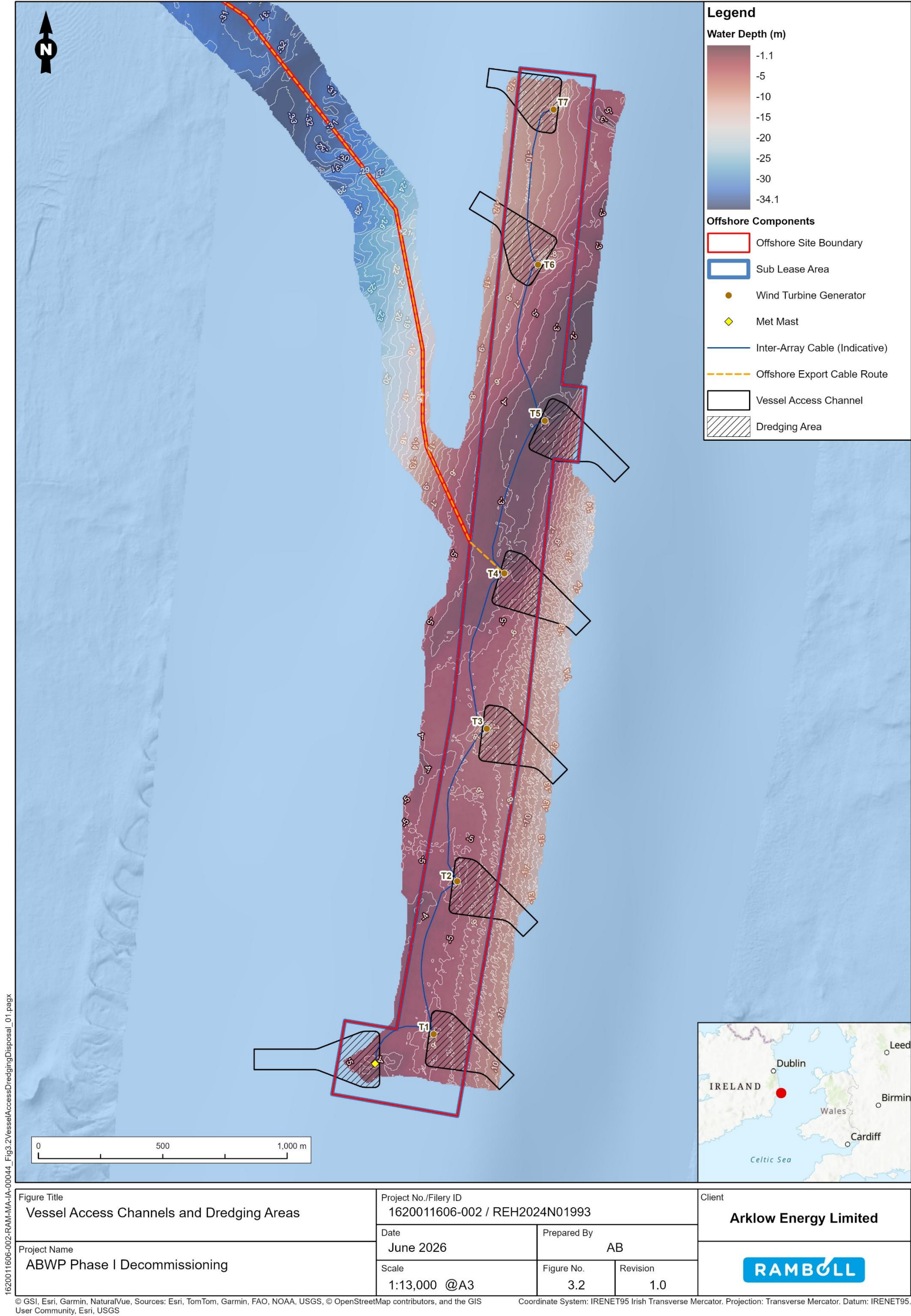


Figure 3.2: Vessel access channels and dredging

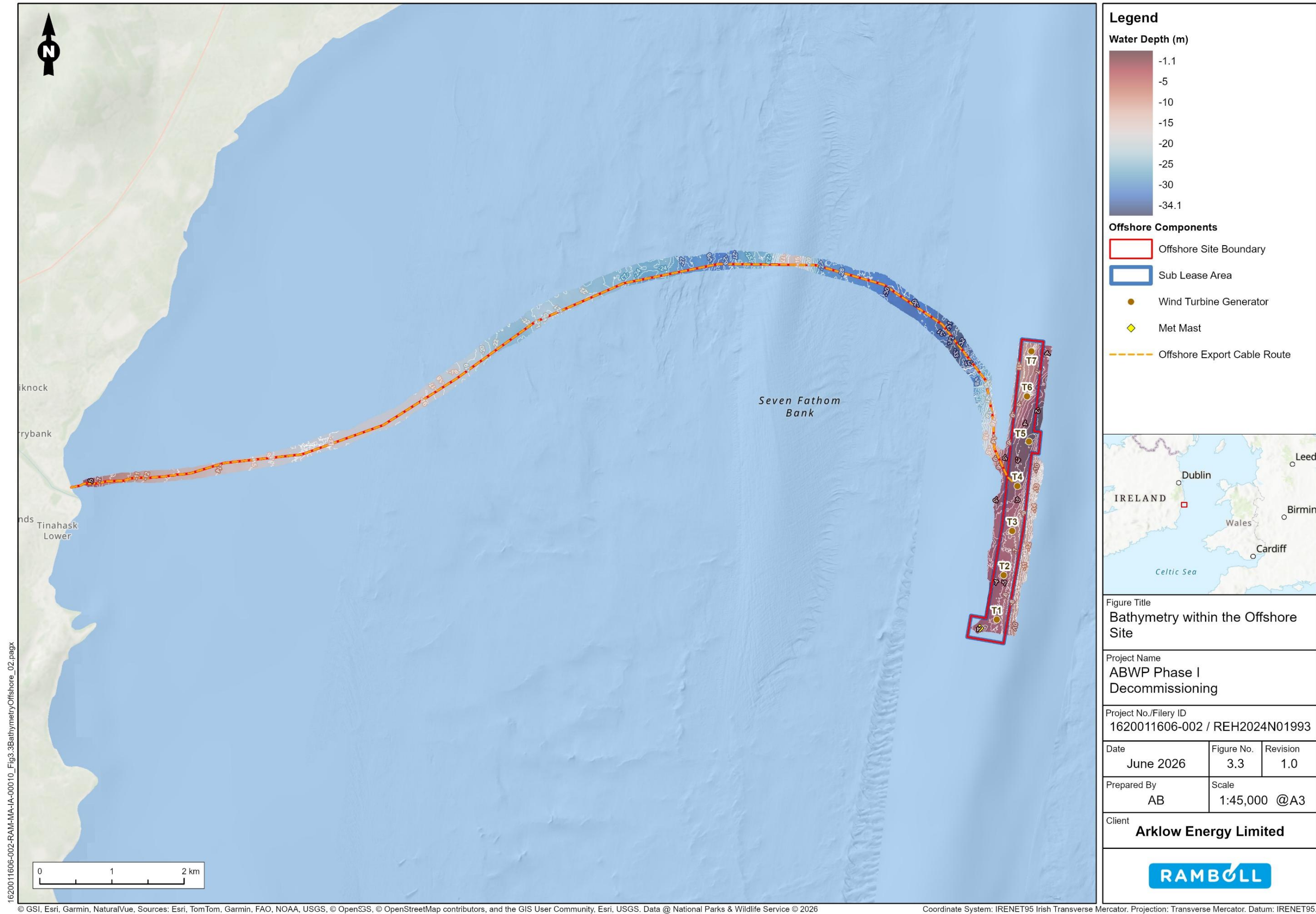


Figure 3.3: Bathymetry within the Offshore Site

3.1.3.12 The EIAR for ABWP Phase II (APEM, 2026) reviewed vessel traffic data recorded in 2022 and 2023 within the area around the Proposed Works Offshore, which showed that routing in the area is largely defined by shallow banks, with the majority of commercial vessels passing offshore of the Arklow Bank, and smaller vessel types (e.g. fishing and recreation) more commonly found inshore of the bank. An average of 36-37 unique vessels were recorded per day within the study area considered in the ABWP Phase II EIAR.

3.1.3.13 The presence of the sand bank introduces navigation restrictions, with vessels advised not to approach it within 50 m distance. Accordingly, virtually no marine traffic, apart from the crew transfer vessel performing maintenance activities at ABWP Phase I, enters or transverse the Sub Lease Area.

3.1.4 Proposed Works Offshore Activities

3.1.4.1 A summary of Proposed Works offshore and vessels / plant anticipated is presented in **Table 3.1**.

Table 3.1: Overview of Proposed Works Offshore

Activities	Anticipated approach / methods	Anticipated vessels required
Pre-decommissioning surveys	Geophysical / Remote Operating Vehicle (ROV) / diver surveys undertaken to confirm bathymetric conditions, identify any obstructions and hazards, and update the decommissioning methodology and programme.	Survey vessel equipped with: • Multi-beam Echosounder (MBES) • Side Scan Sonar (SSS) • Sub-Bottom Profilers (SBP) • Magnetometer • ROV • Dynamic Positioning (DP) • Ultra-Short-Baseline (USBL) acoustic positioning systems
Dredging (to facilitate safe vessel access, if required)	Subject to vessel requirements and bathymetric conditions found at the time of decommissioning: • Pre-dredging bathymetric surveys to confirm bathymetry conditions and refine dredging / disposal areas (if any required), volume estimates and methodologies (to be kept within limits / requirements of Dumping at Sea (DaS) permit); • Dredging within Sub Lease Area using: – a Cutter Suction Dredger (CSD), with disposal via pipeline / sidecasting within the Sub Lease Area; – a backhoe dredger (BHD), with disposal via sidecasting within the Sub Lease Area; – plough dredging, if required to maintain required depth within vessel access channels created following dredging with the above methods.	• Survey vessel equipped with MBES; • CSD supported by a single small tugboat and a shallow draft small survey vessel (equipped with MBES); • BHD supported by a single small tugboat and a single split hopper barge, and a shallow draft survey vessel; and/or • Plough dredger supported by a small survey vessel, equipped with MBES.
Decommissioning of wind turbine generators (WTGs)	Reversal of the installation process: • Preparation works, including inspection, removal / securing loose items, etc; • Position of JUB for pre-load and jack up to working height; • Completion of safety checks and preparation of the WTG for lifting; • Full de-energising of the WTG, routing power supply from JUB if required for dismantling; • Permanent removal of rotor and blades; • Disconnection of power and signal cables between the nacelle and tower before removing nacelle; and • Disconnection of power and signal cables between the tower and the TP/ lift system before removing the tower.	Jack Up Barge (JUB) supported by two tugboats and transport barge, with potential use of: • DP • USBL acoustic positioning systems

Activities	Anticipated approach / methods	Anticipated vessels required
Decommissioning of meteorological (met) mast	Dismantled in two separate sections. The triangular platform will subsequently be dismantled using the similar plant and lifting equipment used during WTG decommissioning.	JUB supported by two tugboats and transport barge, with potential use of: • DP • USBL acoustic positioning systems
Decommissioning of transition pieces (TPs)	• Position of JUB for pre-load and jack up to working height. Position of transport barge next to JUB and of gangway next to the TP to provide safe access; • General inspection of the TP before preparation activities for safety purposes; • Removal / securing of loose items inside and outside of the TP; • Installation and non-destructive testing of new lifting points, if required; • Securing of TP to crane for lifting before executing the cuts; and • Lifting of cutting equipment, as well as TP, transferred to the JUB or transport barge.	JUB supported by two tugboats and transport barge, with potential use of: • DP • USBL acoustic positioning systems
Decommissioning of foundations	• Following removal of the TP, then the seabed material inside MPs is extracted using a soil plug removal tool (SPRT). The target dredging depth will be 3 m below the target cutting depth to ensure cutting equipment can be safely operated. • Dredged material will be released via pipeline within 100 m from MP locations at the same time as being dredged; • Use of jetting, vibratory or any other friction removal equipment around the MP, if required; • Installation of the internal cutting equipment inside the MP at the required cutting elevation; • Securing of the MP to crane for lifting before cutting the MP at the target cutting depth; • Holding and then lifting the MP whilst activating the equipment intended to remove potential shaft friction; and • Transfer of cutting equipment and MP onto the JUB and transport barge respectively.	JUB supported by two tugboats and transport barge, with potential use of: • DP • USBL acoustic positioning systems
Scour protection removal	• Position of support vessel equipped with MBES and grab dredger next to the MP; • Guiding of the grab dredger to grab the individual sandbags identified and mapped during MBES, and to lift them from the seabed to a skip located in a supporting barge; and • Recovering of sandbags and release of material back into the seabed via side casting.	• Grab dredger • Small barge equipped with MBES and a skip to temporarily store the content of sandbags
Inter-array cable removal	• Position of the multicat vessel at the designated location near the WTG where the cable needs to be recovered; • Unburial of cable using a running method, pulled out using clamps and a cable puller, towed slowly across the seafloor; and • Cutting of cables underwater or on vessel deck with shears into manageable sections, deposited in containers.	• Multicat vessel of shallow draft equipped with a running method
Offshore export cable removal	• Position of the multicat vessel at the designated location near the WTG where the cable needs to be recovered; • Unburial of cable with a running method, pulled out using clamps and a cable puller;	• Multicat vessel of shallow draft equipped with a running method

Activities	Anticipated approach / methods	Anticipated vessels required
	- The offshore export cable will be severed by grapple and shears vicinity of the landfall, left exposed on the seabed until this is pulled from land; and - Cables will be cut underwater or on vessel deck with shears into manageable sections, deposited in containers for subsequent transfer to port.	
Post-decommissioning survey	Geophysical survey undertaken to verify the resulting seabed condition within the Offshore Site.	Survey vessel equipped with: • MBES • SSS • SBP • Magnetometer • DP • USBL acoustic positioning systems

Vessels and Equipment

- 3.1.4.2 To allow for safe vessel access during the Proposed Works Offshore, it is proposed to establish a work area around the Sub Lease Area demarcated with 12 buoys across a total length of 4,817 m and a total width of 1,605 m (see **Volume 3, Appendix 3.7: Lighting and Marking Plan** of the EIAR). Each buoy shall be marked with a 'Yellow Special Mark' and a yellow light used in a flashing pattern, synchronised with other buoys, with a light range of 5 nm (approximately 9.2 km).
- 3.1.4.3 Once the work area has been established, flashing yellow marine lanterns on the WTGs, currently used in the operational phase, as described in **Volume 3, Appendix 3.7** of the EIAR, shall be turned off. Therefore, flashing yellow lights on buoys and flashing yellow lights on the WTGs / met mast will not be operational at the same time.
- 3.1.4.4 Along the offshore export cable corridor, a 500 m mobile work area will also be implemented around the Proposed Works Offshore.
- 3.1.4.5 The vessels to complete Proposed Works Offshore have not yet been confirmed. However, for the purposes of this assessment, vessel types and maximum number of vessel trips have been assumed for each activity and are described in **Table 3.2**.
- 3.1.4.6 At this stage, it is anticipated that the main decommissioning vessels will be mobilised from a European port, assuming a transit duration of up to 15 days.
- 3.1.4.7 ABWP Phase I decommissioned components will be taken to an available Irish port (Rosslare, Waterford, Dublin and Greenore are potential ports being considered at this stage).
- 3.1.4.8 Upon arrival to the selected port, components will be unloaded using the vessel's main crane, auxiliary cranes/ and land cranes to optimise the programme. Components will subsequently be transferred and processed for reuse, recycle or disposal on land in line with legal requirements, transferred to suitable and licenced waste management facilities in Ireland or outside of Ireland in line with the detailed Offshore Waste Management Plan (WMP) (see outline version in **Volume 3, Appendix 3.8** of the EIAR).

Table 3.2: Vessel types and maximum number of vessel trips

Proposed Works Offshore	Vessel type	Maximum number of vessel trips
Pre-decommissioning Surveys	Survey vessel.	2 vessel trips on any given day; and 20 vessel trips considering a single campaign (with a maximum duration of 10 days).
Dredging (if required)	Survey vessel (pre-dredging surveys).	2 vessel trips on any given day 48 vessel trips considering a single campaign
	- Medium-sized CSD; - Small tugboat; and - Small survey vessel.	3 vessel trips on any given day (for all three vessel types engaged in dredging works, one way); and 48 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign.
	- Medium-sized BHD; - Small tugboat; - Small split hopper barge; and - Small survey vessel.	4 vessel trips on any given day (for all four vessel types engaged in dredging works, one way); and 64 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign.
	- Barge equipped with a plough; and - Small survey vessel.	2 vessel trips on any given day (for both vessel types engaged in dredging works, one way); and 16 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign.
Decommissioning of WTGs / met mast	- JUB supported; - Two tugboats; and - Transport barge.	4 vessel trips on any given day (for all four vessel types, one way); and 12 vessel trips considering all WTGs and met mast are decommissioned within the same campaign.
Decommissioning of TPs	- JUB supported; - Two tugboats; and - Transport barge.	4 vessel trips on any given day (for all four vessel types, one way); and 10 vessel trips considering all TP/MPs are decommissioned within the same campaign.
Decommissioning of Foundations		
Scour Protection Removal	- Grab dredger; and - Small barge.	- Maximum number of vessel trips on any given day: 4 (2 for each vessel type, return trips); and - Maximum number of vessel trips per campaign: 80.
Decommissioning of inter-array cables	Multicat vessel equipped with a running method.	2 vessel trips on any given day (one vessel engaged only, two ways); and 16 vessel trips within the same campaign.
Decommissioning of the offshore export cable	Multicat vessel equipped with a running method.	2 vessel trips on any given day (one vessel engaged only, two ways); and 19 vessel trips within the same campaign.
Post-decommissioning Surveys	Survey vessel.	2 vessel trips on any given day; and 20 vessel trips considering a single campaign (with a maximum duration of 10 days).

3.1.4.9 The equipment to be used will also be confirmed in the final decommissioning method statement. For the purposes of this assessment, the following have been assumed:

Table 3.3: Summary of equipment anticipated to be used

Equipment	Purpose	Operating underwater frequency / Sound Pressure Levels	Effort
Multibeam Echosounder (MBES)	Update the characterisation of the seabed (e.g. bathymetry, seabed morphology, obstructions / hazards) in high resolution.	200 – 700 kHz 200-213 dB re 1 μPa @1m	During pre-decommissioning surveys (all equipment): Three days / max twice per year (when covering the Offshore Site only)
SBP chirp	Update the characterisation of sediments and geological layers beneath the seabed (e.g. sediment thickness, cross-sectional profiles, cable burial depths, obstructions / hazards).	0.2 to 14 kHz	10 days / max twice per year (when also covering the offshore export cable route) During pre-dredging surveys (MBES only): - Three days / max 16 times per year
SSS	Complement the updated characterisation of the seabed undertaken by MBES adding imagery detail.	400 kHz - SPL 210 dB re 1 μPa @1m	During scour protection removal (MBES only): 20 days (throughout duration of scour protection removal works)
USBL	Used for acoustic positioning	21 – 31 kHz - SPL 181 dB re 1 μPa @1m	During post-decommissioning surveys (all equipment): 10 days / once after all Proposed Works Offshore are completed
Magnetometer	Detect and map magnetic anomalies on or below the seabed.	Passive device (i.e. it does not emit any sound waves into the marine environment)	
Underwater mechanical cutting tool	To cut the MP to release the TP (may be undertaken above or below water)	0.1 – 2 kHz - SPLrms 175 dB re 1 μPa @1m	Part of TP/MP removal works, which have a duration of 9.5 days
Internal DOP pump	Submersible dredge pump used to remove seabed material inside MPs	Negligible, as dredging will be undertaken inside the MP structure	Part of TP/MP removal works, which have a duration of 9.5 days
CSD	May be required to facilitate safe vessel access depending on seabed levels encountered at the time of decommissioning. Only one channel would be dredged / maintained at any given time. Dredging and associated disposal works will only take place within the Sub Lease Area.	0.1 to 2 kHz - SPLrms 179 dB re 1 μ Pa @ 1m	- For -4.5 m LAT target seabed depth: up to 7 days per vessel access channel - For -6 m LAT target seabed depth: up to 11 days per vessel access channel
BHD			- For -4.5 m LAT target seabed depth: up to 9 days per vessel access channel - For -6 m LAT target seabed depth: up to 15 days per vessel access channel
Plough dredger			9.5 days per vessel access channel
Grab dredger	Used to remove scour protection		20 days within 30 m from MP locations
Running method	Used to remove inter-array and offshore export cables		- Inter-array cables – 20 days within the Sub Lease Area only - Offshore export cable – 35 days along the cable route only

Design Measures

3.1.4.10 Design measures include measures integrated in the definition of Proposed Works Offshore, and include:

- Modifications arising through the iterative design / methodology development process; and
- Standard industry practice that would occur even without input from the AA process, e.g. actions undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects.

3.1.4.11 **Table 3.4** outlines design measures that are considered as part of the Proposed Works Offshore and are relevant to this document, which will be assumed to be effectively implemented. It should be noted that none of these design measures are intended to avoid or reduce potential impacts to European sites, but are considered integrated elements in the definition of Proposed Works Offshore.

Table 3.4: Design measures relevant to Proposed Works Offshore

Design Measures	Description
Development and adherence to the Detailed Offshore Decommissioning Environmental Management Plan (DEMP)	Volume 3, Appendix 3.4: Outline Offshore DEMP of the EIAR presents standard industry practice and legal requirements for environmental management and mitigation that will be implemented as part of the Proposed Works Offshore. The outline Offshore DEMP also summarises any required additional mitigation identified in relevant EIAR chapters, serving as a framework for the future decommissioning contractor(s) to develop in detail before decommissioning works commence.
Development and adherence to the Detailed Vessel Management Plan (VMP)	Volume 3, Appendix 3.5: Outline VMP of the EIAR defines best-practice vessel management measures, including transit routes, speed restrictions, timing of activities, pollution prevention, and crew environmental awareness, to minimise disturbance, collision risk, and ecological harm. The Detailed VMP will include requirements under the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS (International Maritime Organisation (IMO), 2024) and the IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (IMO, 2023).
Development and adherence to the Detailed Offshore Waste Management Plan (WMP)	Volume 3, Appendix 3.8: Outline Offshore WMP of the EIAR establishes a clear framework for the identification, handling, and management of wastes arising from Proposed Works Offshore, ensuring compliance with standard industry practice and relevant waste legislation, and the principles of the waste hierarchy. Specific waste-related plans for ships and offshore operations is a requirement under MARPOL (The International Convention for the Prevention of Pollution from Ships).

Programme

3.1.4.12 The Proposed Works Offshore (including pre- and post- decommissioning surveys) are planned to take place during favourable weather windows, with main offshore works carried out over spring and summer months where possible. The exact programme is subject to the availability of the supply chain and weather conditions, and will therefore, be confirmed closer to the time. Working times may be extended to periods of '24/7' where safe to do so in order to accelerate the programme.

3.1.4.13 The anticipated duration of individual Proposed Works Offshore activities, excluding any potential downtime due to mechanical failures or weather, is outlined below, some of which may take place in parallel:

- Pre-decommissioning surveys – between 3 and 10 days, undertaken within 6 weeks before any decommissioning campaign and may need to be repeated on a six-month interval basis to identify favourable seabed level conditions;
- Met mast decommissioning – maximum 3 days;
- WTG decommissioning – up to 6.5 days per WTG;
- TP/MP decommissioning – maximum 9.5 days per TP/MP;
- Scour protection removal – up to 20 days;
- Inter-array cables – up to 20 days;

- Offshore export cable – up to 35 days; and
- Post-decommissioning surveys – maximum of 10 days.

3.1.4.14 It is anticipated that Proposed Works Offshore will be executed in two main campaigns:

- First campaign, focused on the decommissioning of WTGs and met mast; and
- Second campaign, focused on the decommissioning of TPs/MPs, scour protection removal and inter-array and offshore export cable removal; as well as post-decommissioning surveys.

3.1.4.15 It should be noted that if there are programme gap(s) between campaigns lasting more than one year, then the work area, demarcated with buoys, will be removed during these programme gap(s) when no Proposed Works Offshore take place. During these potential programme gap(s), existing marine marking will be reinstated, with marine marking placed on the TPs.

3.2 Stage 1 Screening Appraisal for the Appropriate Assessment – Offshore

3.2.1 Ascertaining whether the Proposed Works Offshore is Directly Connected with, or Necessary to, the Management of a European Site

3.2.1.1 The Proposed Works Offshore are not directly connected with, or necessary to, the conservation management of any European site and as such, shall be subject to the provisions of the Article 6(3) procedure laid down by the Habitats Directive and its Irish implementing legislation.

3.2.2 Establishing Potential Impact Pathways and Zone of Influence

3.2.2.1 In line with the Office of the Planning Regulator (OPR) (2021) and EC guidance (2021), the likely Zone of Influence (ZoI) of the Proposed Works Offshore, i.e. the area over which qualifying features may be affected by environmental changes as a result of the Proposed Works Offshore, should be defined using a source-pathway-receptor model, where 'source' corresponds to individual elements of the Proposed Works Offshore that have the potential to affect a European site and associated qualifying features ('receptors') through a given 'pathway', i.e. means or route by which a source can affect receptors. Effects are created when there is a linkage between the source, pathway and receptor.

3.2.2.2 Existing guidance (OPR, 2021) notes recommend consideration of a 15 km screening distance for designated sites, noting that this should be evaluated on a case-by-case basis, avoiding the use of arbitrary distances. However, for offshore projects where underwater sound is expected to be generated, a larger screening distance is required, particularly considering the location of the Offshore Site within the marine environment (where marine qualifying features (for example marine mammals and birds) of European sites may be highly mobile or hydrologically connected to the Offshore Site by open water across the Irish Sea) as well as the nature of the Proposed Works Offshore, and the anticipated scale and duration of the activities. To determine screening distance, the ZoI can be used.

3.2.2.3 Based on the Proposed Works Offshore activities described in **Section 3.1.4**, potential impact pathways have been identified, indicating the anticipated scale of potential impacts, and relevant marine receptor groups potentially affected, that should inform the ZoI to be used in AA screening.

3.2.2.4 It is noted that there is the potential for bats to be present in offshore environments during foraging. All bats in Ireland are protected under national and European Union legislation (NPWS, 2026). However, only lesser horseshoe bat (*Rhinolophus hipposideros*) is protected by European sites in Ireland, with all European sites for lesser horseshoe bats located on the west coast of Ireland. As the Proposed Works Offshore are located off the east coast of Ireland, it is considered highly unlikely that lesser horseshoe bat from a European site will be present in the Offshore Site. Furthermore, ABWP Phase II offshore bat surveys (undertaken between 2021 – 2023 and 2024 – 2025) suggest that offshore bat activity at Arklow Bank is extremely low and is limited to occasional detections of two migratory species, Nathusius' pipistrelle (*Pipistrellus nathusii*) and Leisler's bat (*Nyctalus leisleri*) (which are not features of European sites in

Ireland), during spring and autumn migration periods, with no detection of lesser horseshoe bat. Additionally, offshore bat presence within the Offshore Site is expected to be very infrequent, highly seasonal, and restricted to individual bats in transit (APEM, 2026). Furthermore, bat activity recorded by detectors on coastal headlands around the Arklow coastline was significantly higher than offshore activity (APEM, 2026). The onshore walkover survey at the landfall did not identify suitable roosts or foraging habitat, further suggesting that the presence of bats within the Offshore Site would be highly infrequent (APEM, 2026). Therefore, disturbance and/or displacement of bats protected by European sites, (i.e. lesser horseshoe bat), from the Proposed Works Offshore is highly unlikely and they have not been considered further in this assessment.

3.2.2.5 Potential impact pathways on European sites resulting from the Proposed Works Offshore include:

- **Removal of hard substrates**, where these are colonised by benthic species. The scale of this impact pathway would be limited to the actual footprint / length of the TP/MP or cable infrastructure colonised by benthic species, noting that inter-array and offshore export cables are mostly located below the seabed level throughout most of their length and do not serve as a substratum for benthic growth. Given the limited footprint of TPs/MPs and cable infrastructure potentially colonised, effects (e.g. changes in food resource) on other marine receptor groups are considered negligible, i.e. unlikely to affect the population of any species involved;
- **Temporary habitat loss / disturbance**, where activities interact with the seabed, the scale of this impact pathway would be highly localised and limited to the footprint of the equipment and marine spread. Relevant to subtidal and intertidal benthic ecology and fish, shellfish and sea turtle receptors;
- **Increased suspended sediment concentrations (SSC) and associated deposition**, where activities interact with the seabed, including dredging and disposal, and scour protection and cable removal works. Given the nature and scale of seabed interaction activities, maximum dispersion would be anticipated to be introduced by any dredging, if dredging is required at all, and the associated disposal works. The maximum dispersion of suspended particles is assumed to take place in one tidal cycle, based on one maximum tidal ellipse over a large spring tide, which is anticipated to be approximately 10 km. This pathway is relevant to benthic, fish, shellfish and sea turtle receptors. Marine mammals often reside in turbid environments and are considered to have a natural tolerance to increased SSC (Todd *et al.*, 2014) and this potential impact pathway is therefore not considered further for this marine receptor group;
- **Disturbance/remobilisation of sediment bound contaminants**, where activities interact with the seabed and there is potential for contaminants to be present in sediment. Given that existing sediment quality data within the Sub Lease Area and a representative MP indicates the absence of contaminants in sediment, the probability for sediment bound contaminants to be present within the Offshore Site is considered to be low. Should there be any sediment bound contaminants disturbed during Proposed Works Offshore activities interacting with the seabed, these would be expected to be dispersed and diluted rapidly due to local hydrodynamic conditions and unlikely to become significant to qualifying features. Accordingly, this potential impact pathway is not considered further;
- **Alteration of seabed habitat from changes in physical processes**, where activities cause disturbance to the seafloor, mainly related to the removal of MPs or potential dredging and associated disposal works. The scale of this impact pathway is considered equivalent to that defined for increased SSC. Relevant to benthic receptors only;
- **Increased risk of the introduction and / or spread of invasive and non-native species (INNS)**, related to vessel movements to / from the Offshore Site. Given that the Offshore DEMP and EVMP will include management measures and controls to prevent hull-fouling and transfer of INNS through ballast water, the scale of this risk and associated impact pathway is considered negligible, i.e. unlikely to affect the population of any species involved, and accordingly, this potential impact pathway is not considered further;
- **Accidental release of pollutants**, related to increased vessel activity and nature of decommissioning works. Given that the Offshore DEMP and EVMP will include management measures and controls for accidental spills, minimising the likelihood and magnitude of any impact to a negligible scale, i.e. unlikely to affect the population of any species involved, and this potential impact pathway is not considered further;
- **Injury and/or disturbance from vessel activity (collision risk)**, introduced by increased vessel activity during Proposed Works Offshore. Collision risk is considered to be mainly relevant to larger receptor groups like basking shark (*Cetorhinus maximus*), sea

turtles or marine mammals. Given the highly mobile nature of larger receptor groups over large areas, a precautionary distance of 50 km is considered representative of the ZoI associated with this potential impact pathway;

- **Disturbance and displacement from vessel activity**, introduced by increased vessel activity during Proposed Works Offshore. Mainly relevant to offshore ornithology. Vessels will mainly operate within a relative reduced area, i.e. Sub Lease Area and along the offshore export cable route. The most sensitive bird species to vessel disturbance is red throated diver (*Gavia stellata*). Guidance from the joint UK statutory nature conservation bodies (SNCBs), i.e. Joint Nature Conservation Committee (JNCC), Natural England (NE), NatureScot, Natural Resources Wales (NRW) and Northern Ireland Environment Agency (NIEA), indicates that for offshore wind farm activities, a precautionary buffer of 10 km should be considered for potential displacement effects (JNCC, 2022);
- **Injury and/or disturbance from underwater noise**, where underwater sound generating activities are needed, including surveys, use of ultra-short baseline (USBL) and dynamic positioning (DP) systems during vessel activity. Preliminary results of underwater sound modelling available at the time of writing of this report, indicate that the maximum ZoI for underwater sound effects on marine mammals is 45.5 km, therefore a ZoI of 45.5 km for marine mammals is used for AA screening. For fish, preliminary underwater sound modelling indicates a maximum ZoI of 10 m for underwater sound. However, to account for the mobile nature of migratory fish and therefore potential exposure to underwater sound during migration, a precautionary 50 km buffer has also been considered. Diving birds may also be exposed to underwater sound;
- **Changes in the fish and shellfish community affecting prey resources**, where fish and shellfish communities are affected by the Proposed Works Offshore, having an indirect effect on marine mammals and offshore ornithology. The scale of this impact pathway is considered equivalent to that defined for increased SSC. Considered relevant to marine mammals and offshore ornithology;
- **Removal of potential offshore bird roosting / resting / nesting site** - Given that Proposed Works Offshore may be phased, TPs and MPs may be temporary left *in situ* without operating WTGs. These have the potential to become attractive spots for bird roosting, resting and/or nesting. However, the TPs lack shelves, ledges or other features suitable for nesting, and the temporary breaks between campaigns are considered unlikely to lead to the establishment of significant roosting / resting habitat. Therefore, this is not considered further.

3.2.2.6 Given the nature of the Proposed Works Offshore, pathways for interaction between the Proposed Works Offshore and non-seabird, freshwater and terrestrial qualifying features are considered to be highly unlikely and are therefore not considered further in the offshore AA screening.

3.2.2.7 In summary, based on the potential impact pathways likely to result from the Proposed Works Offshore, the maximum ZoIs used for each marine receptor group in this AA screening are as follows:

- **Benthic receptors**: the largest ZoI is expected to be the potential maximum dispersion of suspended particles in one tidal cycle due to increased SSC, based on one maximum tidal ellipse over a large spring tide. The maximum tidal ellipse and therefore ZoI for benthic is 10 km;
- **Fish, shellfish and sea turtle ecology receptors**: the maximum tidal ellipse of 10 km resulting in a potential maximum dispersion of suspended particles in one tidal cycle due to increased SSC, is also considered a suitable ZoI for fish and shellfish. For migratory fish, a regional approach has been considered following guidance produced by ABPmer (2014) to account for the highly mobile nature of migratory fish over large areas, with a precautionary ZoI of 50 km;
- **Marine mammals**: a specific ZoI for marine mammals can be determined by underwater sound modelling. Preliminary results of underwater sound modelling indicate that the maximum ZoI for underwater sound effects on marine mammals is 45.5 km. Therefore, a maximum ZoI of 45.5 km has been used to determine which European sites should be screened in; and
- **Offshore ornithology**: Some offshore ornithological features are known to travel over large distances from European sites, particularly when foraging (Woodward *et al.*, 2019). However, based on survey data collected from 2021 to 2023 as part of ABWP Phase II (APEM, 2026) and the identification of European sites protecting offshore ornithology features, 50 km is considered a suitable precautionary ZoI.

3.2.3 European Sites within Zone of Influence and Relevant Qualifying Features to be Considered

- 3.2.3.1 Several European sites are present within the ZoIs defined for benthic subtidal and intertidal ecology, fish and shellfish, marine mammals and offshore ornithology, including both SACs and SPAs (**Figure 3.4**). None of the European sites within relevant ZoIs have sea turtle or bats as qualifying features and therefore these species have not been considered further.
- 3.2.3.2 Information on SACs within the relevant ZoI and associated marine qualifying features is provided in **Table 3.5** (additional information on COs is presented in **Appendix A** of this AA Screening Report).
- 3.2.3.3 The SPAs within the ZoIs and associated qualifying features are listed in **Table 3.6** (additional information on COs is presented in **Appendix A** of this AA Screening Report). The information contained in these tables is based on publicly available data sourced from the National Parks and Wildlife Service (NPWS) website.
- 3.2.3.4 Only the European sites with marine qualifying features (i.e. those seaward the HWM) within relevant ZoIs have been considered in this section. Designated sites with terrestrial qualifying features and coastal features landward of the HWM are considered in **Section 4**, except for where a mobile species (for example a seabird foraging in offshore waters) is considered to have the potential for indirect interaction with the Proposed Works Offshore.
- 3.2.3.5 Based on the qualifying features of European sites listed in **Table 3.5** and **Table 3.6**, the following Annex I habitats and Annex II species, and associated potential impact pathways, have been considered in this screening assessment.

Annex I Benthic Habitats

- 3.2.3.6 There are no European sites with benthic qualifying features which occur within the 10 km ZoI for benthic habitats. The Proposed Works Offshore are not located directly within any European site which is designated for Annex I benthic habitats and therefore these habitats will not be directly affected. Therefore, benthic qualifying features and European sites associated with them (and relevant impact pathways), have not been considered further in this assessment.

Annex II Migratory Fish

- 3.2.3.7 There are no European sites with fish and shellfish qualifying features which occur within the 10 km ZoI for these marine receptor groups.
- 3.2.3.8 Under the Habitats Directive, four species of migratory fish are listed as Annex II species which are features of European sites within the ZoI for migratory fish (50 km):
- Atlantic salmon (*Salmo salar*);
 - Sea lamprey (*Petromyzon marinus*);
 - River lamprey (*Lampetra fluviatilis*); and
 - Twaite shad (*Alosa fallax*).
- 3.2.3.9 For migratory fish, the AA screening has adopted a regional approach (based on guidance by ABPmer (2014)) to ensure that any fish qualifying features that may pass through the Offshore Site are also considered. For the purposes of this report, disturbance to migratory fish is considered to have the potential to occur where the Proposed Works Offshore fall in front of (or block) a migratory route for fish species into a river.

Annex II Sea Turtles

- 3.2.3.10 There are no European sites with sea turtle qualifying features which occur within the 10 km ZoI for these species. Therefore, sea turtle qualifying features and European sites associated with them (and relevant impact pathways), have not been considered further in this assessment.

Annex II Marine Mammals

- 3.2.3.11 Marine mammals are highly mobile animals and there is, therefore, the potential for local impacts to have implications for wider populations. The screening approach for cetaceans has therefore considered designated sites with cetacean features within the species-specific Marine Mammal Management Units (MMMUs) which could be affected by the Proposed Works Offshore, published by the Inter Agency Marine Mammal Working Group (IAMMWG) (IAMMWG, 2022), whilst also acknowledging the maximum ZoI of 45.5 km and the potential for effect (considering

the temporary, short-term and small-scale nature of the Proposed Works Offshore) (**Figure 3.4**). MMMUs have been defined based on the biological population structure of cetacean species and their ecological differentiations.

- 3.2.3.12 For pinnipeds (seals), there are currently no IAMMWG agreed MMMUs and Seal Management Units defined by the Special Committee for Seals only covers UK waters (SCOS, 2025). Instead, designated sites within OSPAR Region III which have the potential to be affected by the Proposed Works Offshore are considered whilst also acknowledging the maximum ZoI of 45.5 km and the potential for effect (considering the temporary, short-term and small-scale nature of the Proposed Works Offshore).
- 3.2.3.13 It is acknowledged that harbour seals and grey seals can travel over large distances during foraging trips, with maximum foraging distances considered to be 273 km for harbour seals and 448 km for grey seals (Carter *et al.*, 2022). Therefore, when considering these foraging ranges, it is theoretically possible for seals connected to European sites on the Welsh coast (i.e. Cardigan Bay SAC, Llyn Peninsula and the Sarnau SAC and Pembrokeshire Marine SAC), western coast of Ireland (i.e. Roaringwater Bay and Islands SAC, Slieve Toomey/Tormore Island/Loughros Beg Bay SAC, Slyne Head Islands SAC, Inishbofin and Inishshark SAC, Horn Head and Rinclevan SAC, Duvillaun Islands SAC, Blasket Islands SAC and Inishkea Islands SAC) and Northern Irish coast (Maidens SAC) to interact with the Offshore Site (see **Figure 3.4**).
- 3.2.3.14 European sites in Welsh waters designated for grey seals are highly connected, with seals from these sites using habitat across the entire region of the Welsh coastline (Langley *et al.*, 2020; Russell *et al.*, 2017). Connectivity between European sites in Welsh waters and the Study Area is considered less prevalent. For example, telemetry and tracking data (Russell *et al.*, 2017; Langley *et al.*, 2020) indicates connectivity between the Llyn Peninsula SAC and the Dublin coastline, but this does not extend into the Study Area / maximum ZoI of 45.5 km for underwater sound, where at-sea usage of both harbour and grey seals is low (Carter *et al.*, 2022). Telemetry data also shows no connectivity between European sites on the western coast of Ireland designated for grey seal with the Study Area, despite the long foraging range of grey seals, with at-sea usage data (Carter *et al.*, 2022) showing grey seal activity on the western coast of Ireland is limited to isolated areas. As a result, the Proposed Works Offshore are not expected to have an effect on the integrity of European sites on the Welsh coast or western coast of Ireland, and these have not been considered further.
- 3.2.3.15 The Maidens SAC, located on the northern Irish coastline (**Figure 3.4**) is also designated for grey seal and is within the foraging range of 448 km (Carter *et al.*, 2022). However, grey seals are shown to travel between The Maidens SAC and Scottish waters, rather than Irish waters (Russell *et al.*, 2017). Therefore, this site has also not been considered further.
- 3.2.3.16 Based on the screening approach, only three marine mammal species, listed under Annex II of the Habitats Directive, are qualifying features of European sites present in the ZoI. These species, and their MMMUs and OSPAR regions, are:
- Harbour porpoise– Celtic and Irish Seas MMMU (IAMMWG, 2022);
 - Harbour seal – OSPAR Region III (OSPAR, 2017); and
 - Grey seal – OSPAR Region III (OSPAR, 2017).

Marine Ornithology

- 3.2.3.17 In Ireland there are several nationally and internationally important bird species present in estuarine areas, offshore island and coastal sea cliffs. As a result, several SPA designations for birds exist in Ireland. The ecosystems on the Irish coast provide important breeding grounds for several species of seabird with many legally protected under both national and European environmental regulations.
- 3.2.3.18 Seabird species are typically highly mobile and wide-ranging (particularly during foraging) and therefore there is the potential for local impacts to have implications for wider populations and foraging routes (Woodward *et al.*, 2019). All designated sites within 50 km are considered. However, as foraging ranges for some seabirds may be greater than this (Woodward *et al.*, 2019) these have also been considered in the Screening Assessment.



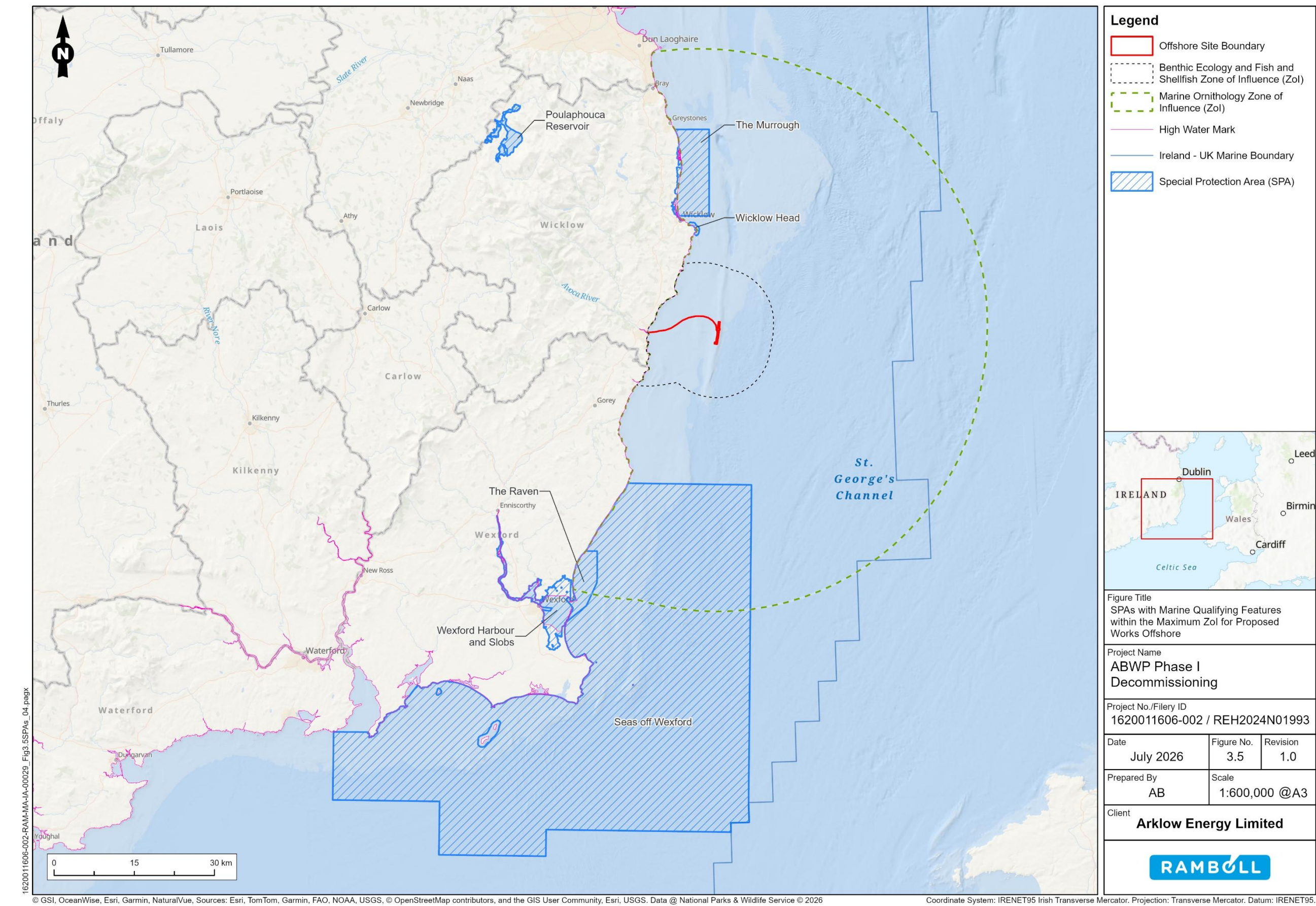


Figure 3.5: SPAs with marine qualifying features within the maximum ZoI for Proposed Works Offshore

Table 3.5: SACs within the ZoI of the Project with marine qualifying features

European site code	European site name	Distance to the Offshore Site (km)	Relevant Qualifying Feature(s) (type) which could interact with the Proposed Works Offshore
000781	Slaney River Valley SAC	13.9	Sea lamprey (<i>Petromyzon marinus</i>) [1095] (marine / freshwater)
			River lamprey (<i>Lampetra fluviatilis</i>) [1099] (marine / freshwater)
			Twaite shad (<i>Alosa fallax</i>) [1103] (marine / freshwater)
			Salmon (<i>Salmo salar</i>) [1106] (marine / freshwater)
			Harbour seal (<i>Phoca vitulina</i>) [1365] (marine)
002953	Blackwater Bank SAC	29.2	Harbour porpoise (<i>Phocoena phocoena</i>) [1351] (marine)
003000	Rockabill to Dalkey Island SAC	47.4	Harbour porpoise (<i>Phocoena phocoena</i>) [1351] (marine)
002162	River Barrow and River Nore SAC	48.4	Sea lamprey (<i>Petromyzon marinus</i>) [1095] (marine / freshwater)
			River lamprey (<i>Lampetra fluviatilis</i>) [1099] (marine / freshwater)
			Twaite shad (<i>Alosa fallax</i>) [1103] (marine / freshwater)
			Salmon (<i>Salmo salar</i>) [1106] (marine / freshwater)
000707	Saltee Islands SAC	72	Grey seal (<i>Halichoerus grypus</i>) [1364] (marine)
000204	Lambay Island SAC	74	Grey seal (<i>Halichoerus grypus</i>) [1364] (marine)
			Harbour seal (<i>Phoca vitulina</i>) [1365] (marine)

Table 3.6: SPAs within the ZoI of the Project and associated marine qualifying features

European site code	European site name	Distance to the Offshore Site (km)	Relevant Marine Qualifying Feature(s) which could interact with the Proposed Works Offshore
004127	Wicklow Head SPA	15.0	Kittiwake (<i>Rissa tridactyla</i>) [A188]
004186	The Murrough SPA	18.1	Red-throated diver (<i>Gavia stellata</i>) [A001] *
			Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]
			Herring gull (<i>Larus argentatus</i>) [A184]
			Little tern (<i>Sterna albifrons</i>) [A195]*
004237	Seas off Wexford SPA	26.1	Red-throated diver (<i>Gavia stellata</i>) [A001] *
			Fulmar (<i>Fulmarus glacialis</i>) [A009]
			Manx shearwater (<i>Puffinus puffinus</i>) [A013]
			Gannet (<i>Morus bassanus</i>) [A016]
			Cormorant (<i>Phalacrocorax carbo</i>) [A017]

European site code	European site name	Distance to the Offshore Site (km)	Relevant Marine Qualifying Feature(s) which could interact with the Proposed Works Offshore
			Shag (<i>Phalacrocorax aristotelis</i>) [A018]
			Common scoter (<i>Melanitta nigra</i>) [A065]*
			Mediterranean gull (<i>Larus melanocephalus</i>) [A176]*
			Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]
			Lesser Black-backed gull (<i>Larus fuscus</i>) [A183]
			Herring gull (<i>Larus argentatus</i>) [A184]
			Kittiwake (<i>Rissa tridactyla</i>) [A188]
			Sandwich tern (<i>Sterna sandvicensis</i>) [A191]
			Roseate tern (<i>Sterna dougallii</i>) [A192]*
			Common tern (<i>Sterna hirundo</i>) [A193]
			Arctic tern (<i>Sterna paradisaea</i>) [A194]
			Little tern (<i>Sterna albifrons</i>) [A195]*
			Guillemot (<i>Uria aalge</i>) [A199]
			Razorbill (<i>Alca torda</i>) [A200]
			Puffin (<i>Fratercula arctica</i>) [A204]
004019	The Raven SPA	42.0	Red-throated diver (<i>Gavia stellata</i>) [A001]*
			Cormorant (<i>Phalacrocorax carbo</i>) [A017]*
			Common scoter (<i>Melanitta nigra</i>) [A065]*
004063	Poulaphouca Reservoir SPA	42.2	Lesser black-backed gull (<i>Larus fuscus</i>) [A183]
004076	Wexford Harbour and Slob SPA	42.9	Cormorant (<i>Phalacrocorax carbo</i>) [A017]*
			Oystercatcher (<i>Haematopus ostralegus</i>) [A130]
			Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]
			Lesser black-backed gull (<i>Larus fuscus</i>) [A183]
			Little tern (<i>Sterna albifrons</i>) [A195]*
*Due to maximum foraging range information provided by Woodward <i>et al.</i> (2019) and British Trust for Ornithology (2026), these species are not expected to directly interact with the Proposed Works Offshore but may experience indirect effects.			

3.2.4 Potential Impact Pathways Taken Forward for Screening

3.2.4.1 Based on the European sites and associated qualifying features presented in **Section 3.2.3** and shown in **Figure 3.4** and **Figure 3.5**, **Table 3.5** and **Table 3.6**, the following potential impact pathways have been considered further in the screening assessment presented in **Section 3.2.5**:

- Increased SSC and associated deposition affecting fish qualifying features;
- Changes in the fish and shellfish community affecting prey resources for marine mammal and bird qualifying features;
- Injury and/or disturbance from underwater noise affecting fish, marine mammal and bird qualifying features;
- Injury and/or disturbance from vessel activity (collision risk) affecting marine mammal qualifying features; and
- Disturbance and displacement from vessel activity affecting bird qualifying features.

3.2.5 Screening Assessment

Increased SSC and Associated Deposition

3.2.5.1 The interaction of the Proposed Works Offshore with the seabed has potential to result in increased SSC, particularly through the following activities:

- Dredging and associated disposal potentially required to facilitate vessel access;
- Disposal of sand extracted from inside the MPs;
- Removal of inter-array and offshore export cables;
- Interaction of vessel anchors and/or JUB legs with the seabed; and
- Removal of scour protection (sandbags) and release of material.

3.2.5.2 These activities are expected to result in a sediment plume which can temporarily increase turbidity which may result in smothering beyond the footprint of the plume generating activities, resulting in potential effects to fish qualifying features. Effects can include smothering of habitat, clogging of respiratory apparatus, decreased visibility for fish foraging and a reduction in water quality.

3.2.5.3 Due to the dynamic nature of sandy sediments associated with the Arklow Bank sand bank, there is considered to be a natural elevated baseline of disturbed sediment within the Sub Lease Area within the Offshore Site.

3.2.5.4 Any disturbed sediment is expected to be dispersed over a maximum distance of 10 km during the tidal excursion. However, the Proposed Works Offshore are located primarily within coarse sandy sediment, with higher proportions of mud towards the landfall area (EMODnet, 2023). Coarser sediment types typically redeposit on the seabed rapidly following disturbance within close proximity of the area of disturbance. Finer particles, like muds, will remain in suspension for longer and travel further.

3.2.5.5 The potential effects on fish qualifying features resulting from increased SSC and associated deposition are considered below.

Fish Qualifying Features

3.2.5.6 There are two European sites within 50 km of the Offshore Site which have migratory fish qualifying features with potential to forage within / use the Offshore Site:

- Slaney River Valley SAC (sea lamprey, river lamprey, twaite shad, salmon), within 13.9 km; and
- River Barrow and River Nore SAC (sea lamprey, river lamprey, twaite shad, salmon), within 48.4 km.

3.2.5.7 COs set for qualifying features of these (see **Appendix A**), aim to maintain the favourable conservation condition of individual fish species and associated habitats. In some cases, targets are set for distribution (access to estuarine habitats), population structure and density in juveniles, extent and distribution of spawning and juvenile habitats, and water and habitat quality.

3.2.5.8 Maximum dispersion of suspended particles is anticipated to be limited to 10 km. However, on a precautionary basis, it is not possible to rule out the potential for Likely Significant Effects from

increased SSC and associated deposition on fish qualifying features, and such effects are **screened in**.

Changes in the Fish and Shellfish Community Affecting Prey Resources for Marine Mammal and Bird Qualifying Features

- 3.2.5.9 There is the potential for the Proposed Works Offshore to affect key prey resources (namely fish species) for marine mammals and birds, which could lead to increased competition for food and larger foraging distances.
- 3.2.5.10 However, the Proposed Works Offshore will be limited in extent and spatial scale (maximum total area of disturbance of 0.357 km²; see **Volume 2, Chapter 5: Marine Biodiversity** of the EIAR), temporary and short term. Impacts to prey species are also considered to be minor.
- 3.2.5.11 Furthermore, due to the highly mobile nature and large foraging distances of marine mammals and birds and therefore the availability of foraging areas across the wider Irish Sea, any reduction in prey resources resulting from the Proposed Works Offshore are expected to be minor.
- 3.2.5.12 Overall, no likely significant effects associated with effects on prey resources on the COs of marine mammal and bird qualifying features of SACs are anticipated, and **Likely Significant Effects can be ruled out** at the screening stage and without a requirement for Project-specific mitigation measures.

Injury and/or Disturbance from Underwater Noise

- 3.2.5.13 Underwater sound generated by equipment (i.e. transient non-impulsive and impulsive sound) and vessels (i.e. continuous non-impulsive sound) for the duration of the Proposed Works Offshore activities have the potential to affect marine mammal, fish and diving bird qualifying features. Exposure to underwater sound could potentially lead to a variety of behavioural responses, masking important sounds and even causing auditory injury to qualifying features if the frequency of the sound emissions overlap with the frequencies audible by species sensitive to underwater noise.
- 3.2.5.14 Based on preliminary underwater sound modelling results, ZoIs of 10 m for fish (50 km for migratory fish) and 45.5 km for marine mammals has been considered to ensure all European sites with underwater noise-sensitive qualifying features are considered.

Underwater Noise Generated by Equipment Fish Qualifying Features

- 3.2.5.15 The following European sites within 50 km of the site (to account for migratory fish movement) have underwater noise sensitive qualifying migratory fish features with potential to forage within the Offshore Site:
- Slaney River Valley SAC (twait shad, sea lamprey, river lamprey, salmon), within 13.9 km; and
 - River Barrow and River Nore SAC (sea lamprey, river lamprey, twait shad, Atlantic salmon), within 48.4 km.
- 3.2.5.16 Fish rely on underwater sound for a variety of functions including locating prey and predators, and communication (Fay and Popper, 2000). Sensitivity between fish species varies depending on the frequency range that can be detected. However, most fish cannot detect sounds above 1 kHz.
- 3.2.5.17 Fish have been categorised according to their underwater sound sensitivity into functional hearing groups of high hearing sensitivity, medium hearing sensitivity and low hearing sensitivity by Popper and Hawkins (2019):
- High hearing sensitivity fish – this group use a swim bladder or other gas volume to detect sound, perceiving both sound pressure and particle motion. These fish are vulnerable to barotrauma and sensitive to a broad frequency range (several kHz). Species in this category within the study area include twait shad;
 - Medium hearing sensitivity fish – includes fish with swim bladders that do not aid in hearing. These species can detect particle motion but not sound pressure, and while still susceptible to barotrauma, they are sensitive to a narrower frequency range. Qualifying features present in the European sites within the ZoI include Atlantic salmon; and

- Low hearing sensitivity fish – this group lack a swim bladder or other gas chamber. They detect only particle motion and are less prone to barotrauma. Species in this category include lamprey.

3.2.5.18 Thresholds for mortal auditory injury and impairment from impulsive sounds and non-impulsive (continuous sounds) are provided by Popper *et al.* (2014) and shown in **Table 3.7** and **Table 3.8**. All criteria are presented as sound pressure even for fish without swim bladders since no data for particle motion exist. Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N), intermediate (I), and far (F).

Table 3.7: Hearing thresholds for effects in fish from impulsive sounds provided by Popper *et al.*, 2014

Species group	Mortality and potential mortal injury *	Impairment		
		Recoverable injury	TTS	Behaviour
Fish with a swim bladder or other cavities to aid hearing, such as twaite shad	SEL _{cum} 207 dB SPL _{pk} 207 dB	SEL _{cum} 203 dB SPL _{pk} 207 dB	SEL _{cum} 186 dB	H/H/M
Fish with a swim bladder that does not aid hearing, such as Atlantic salmon	SEL _{cum} 210 dB SPL _{pk} 207 dB	SEL _{cum} 203 dB SPL _{pk} 207 dB		H/M/L
Fish without a swim bladder, such as river and sea lamprey	SEL _{cum} 219 dB SPL _{pk} 213 dB	SEL _{cum} 216 dB SPL _{pk} 213 dB		H/M/L
* SPL units are dB re 1µPa and SEL units are dB re 1µPa²s.				

Table 3.8: Hearing thresholds for effects in fish from continuous sounds provided by Popper *et al.*, 2014

Species group	Mortality and potential mortal injury *	Impairment		
		Recoverable injury	TTS	Behaviour
Fish with a swim bladder or other cavities to aid hearing, such as twaite shad	L/L/L	SPL _{rms} 170 dB for 48 hours	SPL _{rms} 158 dB for 12 hours	H/M/L
Fish with a swim bladder that does not aid hearing, such as Atlantic salmon	L/L/L	L/L/L	M/L/L	M/M/L
Fish without a swim bladder, such as river and sea lamprey	L/L/L	L/L/L	M/L/L	M/M/L
* SPL units are dB re 1µPa and SEL units are dB re 1µPa²s.				

3.2.5.19 During Proposed Works Offshore activities, underwater sound will be generated by equipment used for pre-and post-decommissioning works (MBES, SSS, USBL and SBP), and the use of vessels, dredging and cutting and extraction tools.

3.2.5.20 The frequencies of MBES, SSS and USBL are outside the hearing ranges for fish and therefore have not been considered further. However, SBP is within the hearing range for fish and is considered further below. SBP produces impulsive sound and therefore during the pre- and post-decommissioning surveys, effects to fish may arise.

3.2.5.21 Sound produced by vessels, dredging activities and cutting and extraction tools produce continuous sounds which are less impactful to fish. Therefore, SBP is considered to represent the worst-case sound sources.

3.2.5.22 The injury thresholds for fish provided in **Table 3.7** and **Table 3.8** represent the upper limits of sound levels tested and are considered to be very conservative. It is expected that the use of

SBP at the Offshore Site would only cause auditory injury and behavioural disturbance at short distances from the sound source and would not affect the two European sites located at a minimum of 13.9 km away. Some behavioural disturbance may occur during migration and foraging but this is expected to be limited, with fish more likely to be disturbed by vessel movement, moving away before entering the work areas for potential injury.

- 3.2.5.23 However, it is not possible to rule out the potential for Likely Significant Effects from underwater sound on European sites with fish qualifying features and such effects on migratory fish are **screened in**.

Marine Mammal Qualifying Features

- 3.2.5.24 The following European sites within 45.5 km of the site have marine mammal qualifying features with potential to forage within the Offshore Site:

- Slaney River Valley SAC (harbour seal), within 13.9 km; and
- Blackwater Bank Sac (harbour porpoise), within 29.2 km.

- 3.2.5.25 Exposure to underwater sound, depending on intensity, duration and frequency of the sound source, can result in several effects for marine mammals:

- Auditory injury – includes, but not limited to, a permanent threshold shift (PTS), which is a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level resulting in auditory injury, most commonly the result of exposure to intense and/or long-term noise;
- Temporary threshold shift (TTS) – a recoverable and reversible increase in the threshold of audibility, resulting from long-term exposure to noise but not at the extent at which auditory injury would occur;
- Behavioural responses – includes increased alertness, temporary avoidance of habitat, changes in foraging patterns and/or interruption of social interaction. This can be highly variable; and
- Masking – where anthropogenic underwater sound partially or entirely reduces the audibility of signals used for communication and prey detection.

- 3.2.5.26 The most up-to-date sound exposure criteria for auditory injury in marine mammals have been updated and published by the United States National Marine Fisheries Service (NMFS) (NMFS, 2024). The hearing groupings for marine mammals were refined in Southall *et al.* (2019) and updated in NMFS (2024). For impulsive sounds, thresholds for auditory injury are based on dual metrics of peak sound pressure level (SPL_{peak}) and M-weighted cumulative sound exposure level (SEL_{cum}). For continuous sounds, thresholds are provided for SEL_{cum} only.

Table 3.9: Sound exposure criteria for auditory injury in marine mammals, using criteria provided by NMFS (2024)

Species group	Hearing range	Impulsive sound				Continuous sound	
		SPL_{peak}		SPL_{cum}		SEL_{cum}	
		PTS	TTS	PTS	TTS	PTS	TTS
Very high frequency cetaceans such as harbour porpoise (<i>Phocoena phocoena</i>)	200 Hz – 165 kHz*	202	196	159	144	181	161
Phocid seals in water such as harbour seal (<i>Phoca vitulina</i>)	40 Hz – 90 kHz*	223	217	183	168	195	175
*Updated NMFS Guidance (2024) gives a revised hearing range for VHF cetaceans of 200 Hz to 165 kHz and for seals in water of 40 Hz to 90 kHz, updated from hearing ranges provided by Southall <i>et al.</i> (2019)							
NB. Units for SPL are dB re. 1μPa and units for SEL are dB re. 1μPa2s.							

- 3.2.5.27 There are no widely agreed quantitative thresholds for behavioural disturbance (Southall *et al.*, 2019; NMFS, 2024), reflecting a high variability in behavioural responses between both species and individuals.

- 3.2.5.28 During Proposed Works Offshore, underwater sound will mainly be generated by equipment used for pre-and post-decommissioning surveys (MBES, SSS, SBP and USBL).

- 3.2.5.29 The frequency of MBES and SSS are outside the hearing ranges for marine mammals and therefore have not been considered further. However, SBP and USBL is within the hearing range for both harbour porpoise and phocids. SBP is impulsive in nature and is therefore considered to have a higher risk of auditory injury (Southall *et al.*, 2019; NMFS, 2024).
- 3.2.5.30 When exposed to impulsive sound sources such as from SBP, marine mammals are expected to move away in response and avoid the area until the sound source has stopped. However, due to the presence of European sites within the ZoI for marine mammals, it is not possible to rule out the potential for Likely Significant Effects from underwater sound generated from SBP required as part of Proposed Works Offshore on marine mammal qualifying features.
- 3.2.5.31 During cutting works, the temporary use of external cutting tools (within the 9.5 days that TP/MP removal works will take) is anticipated to cause increases of 4 - 15 dB above noise baseline levels, which are considered to be negligible. This is supported by published scientific literature from in-field observations. A study which characterised underwater sound produced from the decommissioning of a monopile oil and gas platform in Scotland in 2021 (Fernandez-Betalu *et al.*, 2024) evidenced that the sound pressure spectral density levels measured during periods of operation of cutting equipment as well as during periods of operation for ROV visual inspection of the subsea structure were insignificant. This study concluded that the dominant source of sound during the decommissioning period appeared to be associated with the presence of the vessels carrying out the decommissioning activities rather specific activities such as site investigation and cutting per se as there was no clear change in the 30-min sound pressure levels recorded during specific activities such as cutting at the measured location, 751 m from the infrastructure. Any noise produced during these specific decommissioning cutting and testing activities appears to have been masked by the dominant vessel sound produced by the three vessels (crane, safety, and support vessels) that remained on site through the decommissioning period.
- 3.2.5.32 Overall, it is not possible to rule out the potential for Likely Significant Effects from underwater sound produced by SBP and other equipment on marine mammal qualifying features, and such effects on marine mammals are **screened in**.

Birds Qualifying Features

- 3.2.5.33 When considering bird qualifying features, only diving birds are considered to be exposed to underwater sound. There are no European sites within 50 km of the Offshore Site which have diving bird qualifying features.
- 3.2.5.34 Overall, no Likely Significant Effects associated with underwater sound on the COs of bird qualifying features of SPAs located within 50 km, are anticipated, and **Likely Significant Effects can be ruled out** at the screening stage and without a requirement for Project-specific mitigation measures.

Vessel Use

- 3.2.5.35 The underwater sound levels anticipated to be generated by vessel movements, correspond to the temporary/non-continuous use of up to six small (160-175 dB (re 1µPa)) and medium sized vessels (165-180 dB (re 1µPa)) (see **Section 3.1.4**) across the duration of the Proposed Works Offshore.
- 3.2.5.36 Given the existing concentration of marine traffic either side of the sand bank running north/south up the Irish sea and maintenance vessels that currently access ABWP Phase I (see **Section 3.1.3**), the operation of up to six additional vessels is considered unlikely to significantly increase the noise levels from marine traffic currently operating in the area. However, operations of the positioning systems (either dynamic or conventional, where applicable) to keep the vessels in position for the duration of the decommissioning activities will emit continuous broadband sounds, which will exceed the exposure limits for disturbance for both marine mammals and fish.
- 3.2.5.37 Recent evidence suggests that underwater sound from operating vessels including the jack-up and crane vessels required for Proposed Works Offshore could lead to potential temporary displacement of marine mammals such as harbour porpoises and harbour seals occurring in the ZoI. The in-field observations from the decommissioning of the oil and gas platform in Scotland in 2021 (Fernandez-Betalu *et al.*, 2024) supports this finding which found small-scale (<2 km) but significant levels of harbour porpoise displacement linked to these activities.
- 3.2.5.38 Primary baseline data collected in 2021 undertaken as part of the ABWP Phase II EIAR (APEM, 2026) confirmed the regular presence of the harbour porpoise in the Arklow Bank study area and further described the regular presence of harbour seals in the wider Irish waters. While it

cannot be determined with the current available data if the marine mammal individuals detected form part of the qualifying population of the Slaney River Valley SAC (harbour seal) (13.9 km south) and Rockabill to Dalkey Island SAC (harbour porpoise) (47.4 km north), given that the harbour porpoise and harbour seal are highly mobile species with wide distributions in Irish coastal waters and given the known relatively large foraging range recorded for harbour seals (i.e. up to 273 km from haul-out sites in a single trip (Carter *et al.*, 2023)) and the high mobility of harbour porpoise, the potential functional ecological linkage of these SACs to the Offshore Site is uncertain and as such cannot be ruled out at this screening stage.

- 3.2.5.39 Overall, it is not possible to rule out the potential for Likely Significant Effects from underwater sound produced by vessel positioning systems on marine mammal qualifying features, and such effects on marine mammals are **screened in**.

Injury and/or Disturbance from Vessel Activity (Collision Risk)

- 3.2.5.40 Increased vessel traffic associated with the Proposed Works Offshore has the potential to increase the risk of collision with marine mammals that are qualifying features of European sites. Vessel type and speed will influence the magnitude of this potential effect.
- 3.2.5.41 Limited number of vessels, up to six at any one time, are anticipated to be used by the Proposed Works Offshore. Due to existing vessel activity in the wider area (see **Section 3.1.3**), and the highly localised and temporary nature of the Proposed Works Offshore, any potential collision risks would be anticipated to be negligible and localised (and unlikely to affect the population of any species involved).
- 3.2.5.42 Overall, no likely significant effects associated with vessel collision risks on the COs of marine mammal qualifying features of SACs located within the Study Area, are anticipated, and **Likely Significant Effects can be ruled out** at the screening stage and without a requirement for Project-specific mitigation measures.

Disturbance and Displacement from Vessel Activity

- 3.2.5.43 During the Proposed Works Offshore, there is the potential for the disturbance and displacement of birds due to presence of vessels operating in the Offshore Site. Red-throated diver is considered to be the most sensitive bird species to disturbance and displacement from vessel activity (JNCC, 2022). Guidance from the joint SNCB indicates that for offshore wind farm activities, a precautionary buffer of 10 km should be considered for potential displacement effects of red-throated diver (JNCC, 2022). The closest European site for which red-throated diver is a qualifying feature is the Murrough SPA which is located 18.1 km from the Offshore Site. Red-throated diver is considered to have a maximum foraging range of 9 km (mean range of 4.5 km) (Woodward *et al.*, 2019). Therefore, there may be some small overlap. However, vessels are expected to be largely restricted to a very small area around the Offshore Site. Therefore, the potential for disturbance to red-throated diver from vessels operating in the Offshore Site is small.
- 3.2.5.44 There is the potential for other bird species which are qualifying features of European sites within the Study Area (and those which are not qualifying features of European sites) to be disturbed and displaced by vessel activity in the Offshore Site, during foraging trips. However, distribution maps of seabirds (Waggitt *et al.*, 2019) show that presence in the western Irish Sea is relatively low throughout the year for several bird species including kittiwake, gannet and herring gull. Furthermore, due to the high baseline level of shipping activity in the Irish Sea, other bird species are considered to have a high tolerance to vessel presence, finding alternative foraging habitat in the event of disturbance and displacement.
- 3.2.5.45 Overall, no likely significant effects associated with vessel activity on the COs of bird qualifying features of SACs (or any bird species not protected by European sites) are anticipated, and **Likely Significant Effects can be ruled out** at the screening stage and without a requirement for Project-specific mitigation measures.

3.3 In-Combination Screening

3.3.1.1 The maximum ZoI of Proposed Works Offshore, when considered in-combination with other plans or projects, has been defined as 91 km from the Offshore Site, as this represents the maximum cumulative ZoI initially defined for marine biodiversity at this stage:

- For benthic ecology, and fish and shellfish, the cumulative ZoI is defined as 20 km, corresponding to two tidal excursions during a mean spring tide, providing a scientifically robust proxy for the maximum potential offshore transport of suspended sediments;
- For marine mammals, the cumulative ZoI is defined as 91 km, corresponding to twice the maximum behavioural disturbance impact range (45.5 km) of Proposed Works Offshore alone; and
- For marine birds, given the impact pathways identified for Proposed Works Offshore alone, and distance between the Offshore Site and European sites with marine bird qualifying features, see **Section 3.2**, no impact pathways on European sites or associated marine bird qualifying features are considered likely in combination with Proposed Works Offshore.

3.3.1.2 **Table 3.10** outlines other developments identified within a search area of 91 km from the Offshore Site and considers whether these are likely to temporarily and/or spatially overlap with the Proposed Works Offshore and whether they are likely to lead to in-combination effects. Those located within 50 km are shown in **Figure 3.6**.

Table 3.10: Other developments considered in the in-combination screening in relation to Proposed Works Offshore

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Arklow Bank Wind Park Phase II Site Investigations (SI04)	Site investigations	Tier 1 Approved (valid to July 2029)	0	Site investigations are proposed within an area that overlaps with the Offshore Site. Although this project and the Proposed Works Offshore do not overlap with any European site, there is the potential for underwater sound disturbance effects on qualifying fish and marine mammal features foraging outside the boundary of European sites. The greatest risk of cumulative effects from underwater sound on fish and marine mammals would arise during concurrent geophysical survey activities associated with the Proposed Works Offshore and the site investigations. When there is direct spatial and temporal overlap of impulsive geophysical survey activities occurring for ABWP Phase II and the Proposed Works Offshore, some cumulative effect may occur. However, AUD INJ and TTS effects from both the Proposed Works Offshore and the ABWP Phase II site investigations are considered highly localised, and for impulsive sources such as SBP and USBL, sensitive individuals are expected to move away from sudden and intense underwater sound sources, limiting accumulated exposure. In addition, it is unlikely that these activities will overlap temporally, as the surveys for the Proposed Works Offshore are anticipated to be of very short duration, and there will be communication channels well established with ABWP Phase II, as required by design measures captured in the Detailed Offshore DEMP. However, in the unlikely case that these temporarily overlap, this will be short-term, intermittent, and spatially limited, and there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
ABWP Phase II (ORE01)	Offshore wind farm	Tier 1 Planning application submitted	0	Project falls within cumulative ZoI including for increased SSC and deposition on benthic and fish and shellfish habitats, and underwater sound to which fish and marine mammals are sensitive to. The ABWP Phase II project is proposed within an area adjacent to the Offshore Site, including cable installation works that overlap with the ABWP Phase I offshore export cable route. Although this project and Proposed Works Offshore do not overlap with any European site, there is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites. The sediment plume for ABWP Phase II is expected to travel up to 8 km (APEM, 2026) and therefore will occur over a similar distance to the Proposed Works Offshore. Any migratory fish which may interact with the sediment plume are considered to have a high level of tolerance to turbid conditions resulting from sediment suspension and subsequent deposition due to their association with estuarine habitats which are naturally more turbid. Furthermore, due to the sandy nature of the seabed within the Offshore Site and the nature of the Proposed Works Offshore / ABWP Phase II sediment disturbing activities, the majority of any cumulative sediment plume is expected to deposit relatively localised to the areas of disturbance, over an area considered small compared to the total area available for migratory fish from nearby European sites. The greatest risk of cumulative effects from underwater sound on fish and marine mammals would arise during concurrent survey and MP removal works associated with the Proposed Works Offshore and the ABWP Phase II construction works, which include foundation installation works. However, the sound levels generated by the Proposed Works Offshore are expected to be low relative to those associated with construction works for ABWP Phase II. For example, when considering effects of underwater sound generation on harbour porpoise, the worst-case impact ranges for instantaneous AUD INJ and TTS onset resulting from the ABWP Phase II construction works are 680 m and 1,600 m respectively (APEM, 2026), compared to 400 m and 900 m for the Proposed Works Offshore. In addition, it is unlikely that these activities will overlap temporally, as the works for the Proposed Works Offshore are anticipated to be of short duration, and there will be communication channels well established with ABWP Phase II, as required by design measures captured in the Detailed Offshore DEMP. However, in the unlikely case that these temporarily overlap, this will be temporary, intermittent, and spatially limited and there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Wicklow Sea Wind Ltd - Cable Route Site Investigations. Site investigations for an export cable corridor from a Celtic Sea OWF to the Wicklow coast (SI06)	Site investigations	Tier 1 Application submitted	0.11	Project falls within cumulative ZoI for increased SSC and deposition on benthic and fish and shellfish habitats, and underwater sound. Site investigation works for the cable route are proposed within the vicinity of the Offshore Site, and are anticipated to be programmed across five years, although the duration of geophysical and geotechnical surveys is anticipated to be up to three months in duration. Although this project and the Proposed Works Offshore do not overlap with any European site, there is the potential for disturbance effects on qualifying fish and marine mammal features foraging outside the boundary of European sites. In relation to increased SSC and deposition, the cable route and site investigations for the Wicklow Offshore Wind Farm are expected to result in very minor, small and localised disturbance of sediment with any resulting sediment plume expected to be negligible compared to natural sediment transport (Royal Haskoning, 2022). In relation to underwater sound, the site investigation works overlap with the largest marine mammal impact ranges of USBL from the Proposed Works Offshore (400 m and 1 km respectively for AUD INJ and TTS; impacts to fish are highly localised to within 10 m of the Proposed Works Offshore). However, the closest European site with features sensitive to underwater sound is the Slaney River Valley 13.9 km west (with the estuary mouth of this site and therefore the location of noise-sensitive species located 55 km south) and therefore outside of the impact range for AUD INJ and TTS from either project. The maximum potential disturbance effect range for the Wicklow site investigations is 3.77 km (Royal Haskoning, 2022) which is much smaller than that of Proposed Works Offshore. Furthermore, the Wicklow project is located 16.5 km from the nearest European site (Royal Haskoning, 2022) and would therefore also not result in cumulative effects in the nearest European site. Given the short duration of this project and of Proposed Works Offshore, it is unlikely that these activities will overlap temporally, and there will be communication channels well established with Wicklow Sea Wind Ltd/Inis Offshore Wind Ltd, as required by design measures captured in the Detailed Offshore DEMP. However, in the unlikely case that these temporarily overlap, this will be temporary, intermittent and this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Flood relief scheme Arklow (CA04)	Coastal asset	Tier 1 Approved	0.27	The flood relief scheme is expected to take place between Q4 2026 and Q3 2030 and could result in in-combination effects relating to increased SSC and generation of underwater sound. Although this project and Proposed Works Offshore do not overlap with any European site, there is the potential for disturbance effects on qualifying fish and marine mammal features foraging outside the boundary of European sites. Sediment plume modelling has not been undertaken for the Arklow Flood Relief Scheme. Dredging undertaken as part of the flood relief works, within the Avoca River channel (Arup, 2021), is expected to result in some increased SSC and subsequent deposition of sediment. However, dredging for the flood relief works will be timed so that they do not occur within important migratory periods of lamprey and Atlantic salmon using the Avoca River (i.e. approximately October to April). It is also expected that any increase in SSC as a result of the flood relief works will be short-lived and in line with baseline turbid conditions of the Avoca River. Underwater sound modelling has not been undertaken for this project but any underwater sound generated is expected to be short-term and temporary (Arup, 2021). Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.
Wicklow Sea Wind Ltd., Site Investigations for the proposed Wicklow Project offshore wind farm, off County Wicklow (SI07)	Site investigations	Tier 1 Application submitted	5.53	Site investigation works for the offshore wind farm are proposed within 5.53 km north east of the Offshore Site, and are anticipated to be programmed across five years, although the duration of geophysical and geotechnical surveys is anticipated to be up to three months in duration. Due to the distance of the site investigations from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. The site investigations have a maximum impact range for AUD INJ of 23 m (Royal Haskoning, 2022) and therefore, although there is overlap with the impact range for the Proposed Works Offshore, this will not occur within a European site. The maximum potential disturbance effect range for the site investigations is 3.77 km (Royal Haskoning, 2021) which is much smaller than that of Proposed Works Offshore. Furthermore, the Wicklow project is located 16.5 km from the nearest site (Royal Haskoning, 2022) and would therefore not result in cumulative effects in the nearest European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered minor when considering the low densities of marine mammals around the Proposed Works Offshore and surrounding areas outside European sites. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Codling Wind Park (CWP) Limited, Survey mobilisations at the proposed Licence Area to inform the location and detailed design of the proposed CWP offshore windfarm (OWF) (SI11)	Site investigations	Tier 1 Approved. Undergoing Judicial review	19.89	The maritime usage licence (MUL) for the Codling Wind Park site investigations commenced on 2 February 2026 and is valid for a period of three years; therefore, there is potential for temporal overlap with the Proposed Works Offshore. The investigations comprise metocean, geotechnical, geophysical, UXO, fish and shellfish, benthic, intertidal, marine mammal and archaeological surveys. Due to the nature and location of the activities, the principal potential pathway for in-combination effects relevant to the Proposed Works Offshore is underwater sound affecting qualifying marine mammal features of European sites. The AA Screening undertaken for MUL230034 could not exclude likely significant effects on European sites, either alone or in combination with other plans or projects, and the site investigations were therefore subject to Stage 2 Appropriate Assessment. The European sites considered at Stage 2 included Rockabill to Dalkey Island SAC, Codling Fault Zone SAC and Lambay Island SAC in relation to potential underwater sound disturbance of qualifying marine mammal features. However, the Codling Wind Park site investigations are located at a minimum distance of 19.89 km from the Proposed Works Offshore. This separation substantially exceeds the largest auditory injury and temporary threshold shift ranges associated with USBL use during the Proposed Works Offshore (comprising 400 m and 1 km respectively for AUD INJ and TTS, while impacts on fish are highly localised to within 10 m of the Proposed Works Offshore). Accordingly, these impact envelopes would not spatially overlap. There remains potential for qualifying marine mammal features to forage outside the boundaries of European sites and move through the wider waters surrounding the two projects. However, taking account of the separation between the activities, the spatially limited impact ranges associated with the Proposed Works Offshore and the low densities of marine mammals recorded around the Offshore Site and surrounding waters, the Proposed Works Offshore would not materially contribute to the effects associated with the Codling Wind Park site investigations within a European site. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Codling Wind Park (ORE02)	Offshore wind farm	Tier 1 Application Submitted	21.54	The programme for the Codling Wind Park is expected to occur between 2026 and 2027 and it is expected there could be some overlap with the Proposed Works Offshore. Due to the distance of the project from the Offshore Site and its nature (requiring unexploded ordnance (UXO) clearance and piling) the main potential pathway for cumulative effect is underwater sound. Based on worst-case modelling produced for Codling Wind Park for UXO, cumulative disturbance may occur up to 26 km from the project for marine mammals (based on an effective deterrent range of 26 km for high-order UXO detonation) and 24 km for fish (based on high-order UXO) (Codling Wind Park Ltd, 2022a). However, due to the location of the Codling Wind Park and the maximum distance for disturbance to occur, underwater sound production would not occur cumulatively with the Proposed Works Offshore within a European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered to be limited to a small number of individuals when considering the low densities of marine mammals and fish around the Offshore Site and surrounding waters outside European sites. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.
Site Investigations for the proposed Dublin Array Offshore Wind Farm (SI08)	Site investigations	Tier 1 Approved (valid to January 2028)	22.93	The timeframe for site investigations at Dublin Array are currently unknown but as the licence is valid until January 2028, there is potential for temporal overlap. Due to the distance of the site investigation works from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. Due to the nature of site investigations, any effects are expected to be minor and localised to the area of the activity. Due to the distance of project from the Proposed Works Offshore, the site investigation works would not overlap with the largest marine mammal impact ranges of USBL (400 m and 1 km respectively for AUD INJ and TTS; impacts to fish are highly localised to within 10 m of the Proposed Works Offshore). Furthermore, the Dublin Array site investigations are located closest to the Rockabill to Dalkey Island SAC, which is outside of the range for disturbance (45.5km) for the Proposed Works Offshore. Therefore, underwater sound impacts would not occur cumulatively within a European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered to be limited to a small number of individuals when considering the low densities of marine mammals around the Proposed Works Offshore and surrounding waters outside European sites. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Dublin Array Offshore Wind Farm (ORE03)	Offshore wind farm	Tier 1 Planning application submitted	36.97	The programme for the Dublin Array Offshore Wind Farm is currently unknown but there is potential for temporal overlap with the Proposed Works Offshore. Due to the distance of the project from the Offshore Site, the main potential pathway for cumulative effect is underwater sound from UXO clearance, pilling and other construction activities. Based on worst-case modelling produced for Dublin Array for marine mammals and fish including UXO, some cumulative disturbance may occur up to 26 km from the project for marine mammals (based on an effective deterrent range of 26 km for high-order UXO detonation) and negligible for fish (based on high-order UXO) (Dublin Array, 2026). However, due to the location of the Dublin Array and the maximum distance for disturbance to occur, underwater sound production would not occur cumulatively with the Proposed Works Offshore within a European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered to be limited to a small number of individuals when considering the low densities of marine mammals and fish around the Proposed Works Offshore and surrounding waters outside European sites. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.
Site investigation to inform detailed engineering design for the Greater Dublin Drainage Project (SI15)	Site investigations	Tier 1 Approved	50	The programme for the Greater Dublin Drainage Project is currently unknown but there is potential for some temporal overlap with the Proposed Works Offshore. Due to the distance of project from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. The Greater Dublin Drainage Project is located within the Rockabill to Dalkey Island SAC and is 7 km from the Lambay Island SAC, and is expected to result in some disturbance from underwater sound generation during site investigations (Mott MacDonald and RPS, 2025). However, these European sites are outside of the maximum ZoI of 45.5 km for the Proposed Works Offshore. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered to be limited to a small number of individuals when considering the low densities of marine mammals around the Proposed Works Offshore and surrounding waters outside European sites. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Environmental survey and ground investigation works in order to inform the design of proposed Point Bridge and Tom Clarke Widening Project (SI16)	Site investigations	Tier 1 Approved	51.4	The licence for the Point Bridge and Tom Clarke Widening Project is valid until 2027 and therefore there could be some overlap with the Proposed Works Offshore. Due to the distance of the project from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, due to the location, small extent and nature of the works within the river, any effects are expected to be minor and localised to the area of the project for both marine mammals and fish, with sound from GI works occurring below the most sensitive threshold for high frequency cetaceans (Roughan and O'Donovan, 2023). Therefore, marine mammals would only experience background noise conditions when in the vicinity of the project (Roughan and O'Donovan, 2023). Therefore, due to the distance of this Project from the Proposed Works Offshore, this would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore, and therefore not resulting in cumulative effects to any European site or features. Therefore, this project has not been considered further in Stage 2.
Rosslare Euro Port (Rosslare Offshore Renewable Energy Hub), including rock blasting, capital dredging, reclamation works and piling (SHP04)	Port	Tier 1 Application submitted	52.5	The Rosslare Euro Port project is anticipated to commence in mid-2026 and take approximately two years, so there is potential for temporal overlap with Proposed Works Offshore. Due to the distance of the port works from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. The assessment of impacts for the Rosslare project indicates that all potential effects will be localised and minor, with the maximum impact range for underwater sound considered to be 4.6 km for marine mammals and 100 m for fish (Irish Rail, 2025) which would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. There is the potential for disturbance effects on qualifying features foraging outside the boundary of European sites, but this is considered to be limited to a small number of individuals when considering the low densities of marine mammals around the Proposed Works Offshore and surrounding waters outside European sites. Therefore, this project has not been considered further in Stage 2.
Construction of a new Ro-Ro Jetty, works on berths, and construction of passenger terminal building, including dredging and ancillary site works (CA29)	Coastal asset	Tier 1 Approved	55.66	There is potential for overlap with the Proposed Works Offshore. Due to the distance of the port works from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, underwater sound modelling undertaken for this development indicates that maximum range of disturbance is 120 m from the source (RPS, 2019), which would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore. Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Dún Laoghaire Rathdown County Council, Marine environmental surveys for the purposes of site investigation to assess the feasibility of potential future dredging within the harbour (SI19)	Site investigations	Tier 1 Approved	55.72	Site investigation works are estimated to take approximately two to three weeks and may occur at any time of year. Due to the distance of the project from the Offshore Site, the main potential pathway for in-combination effects is underwater sound for marine mammals. This project is located close to South Dublin Bay SAC and Rockabill to Dalkey Island SAC. However, the site investigations would be confined to Dún Laoghaire Harbour and, according to the AA Screening undertaken for this site investigation, are considered to result in short-duration, localised and low-magnitude effects. As the project is located approximately 55.72 km from the Offshore Site, these effects would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore and therefore there is considered to be no potential for in-combination effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
Dún Laoghaire Rathdown County Council, site investigation activities to assess the feasibility of constructing components of a National Watersports Campus (SI20)	Site investigations	Tier 1 Application submitted	55.88	Site investigation works are proposed to assess the feasibility of constructing components of a National Watersports Campus. The exact timing of the works is currently unknown; therefore, there is potential for temporal overlap. Due to the distance of the project from the Offshore Site, the main potential pathway for in-combination effects is underwater sound for marine mammals. The site investigations are located approximately 55.88 km from the Offshore Site and therefore outside the maximum underwater sound ZoI of 45.5 km for the Proposed Works Offshore. Consequently, although effects from the site investigations on European sites were considered to require further assessment as part of the consenting process for MUL250023, any underwater sound effects associated with SI20 would not spatially overlap with those arising from the Proposed Works Offshore within a European site. Therefore, there is no potential for in-combination effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
EirGrid Plc, site investigation for the proposed electrical cable circuit crossing Dublin Bay from Blackrock Park to Shellybanks (SI21)	Site investigations	Tier 1 Approved	56.41	The site investigation surveys would be undertaken on a phased basis during the two-year licence period, which commenced on 24 March 2026. Therefore, there is potential for temporal overlap with the Proposed Works Offshore. The investigations would take place within Dublin Bay, between Blackrock Park, Shellybanks and Poolbeg Lighthouse, and would include geophysical, geotechnical, metocean and environmental surveys. Due to the distance of the project from the Offshore Site, the main potential pathway for in-combination effects is underwater sound affecting marine mammals. The site investigations are located approximately 56.41 km from the Offshore Site and therefore outside the maximum underwater sound ZoI of 45.5 km for the Proposed Works Offshore. Consequently, although effects from the site investigations on European sites were considered to require further assessment as part of the consenting process for MUL240010, any underwater sound effects associated with SI21 would not spatially overlap with those arising from the Proposed Works Offshore within a European site. Therefore, there is no potential for in-combination effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.
Development at Howth Fishery Harbour Centre (Dredging of harbour, land reclamation and landscaping and coastal works) (CA14)	Coastal asset	Tier 1 Approved	63.41	The programme for Howth Fishery Harbour development is currently unknown but there is potential for temporal overlap with the Proposed Works Offshore. Due to the distance of the project from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, underwater sound generation at Howth harbour is expected to be limited to vessel use during dredging operations and is considered to be relatively in line with ambient sound levels and localised (Fingal County Council, 2024). Therefore, there is no potential for cumulative effects with the Proposed Works Offshore to occur within a European site. Therefore, this project has not been considered further in Stage 2.
North Irish Sea Array Offshore Wind Farm (ORE04)	Offshore wind farm	Tier 1 Application submitted	65.1	The programme for North Irish Sea Array Offshore Wind Farm development is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the requirement for UXO clearance and piling as part of the project, there is the potential for cumulative effects resulting from underwater sound on marine mammals. However, the maximum disturbance range for UXO clearance is considered to be 12 km (Ove Arup & Partners Ireland Limited, 2024) which would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore. Therefore, there is no potential for cumulative effects to occur within a European site. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Codling Wind Park Ltd. Site Investigations for proposed Offshore Wind Farm, off Counties Wicklow and Dublin (SI25)	Site investigations	Tier 1 Approved	67.1	Site investigation works are proposed to take up to three years in total (except for fish and shellfish surveys, benthic and intertidal surveys, and intertidal walkover survey to extend up to seven years to also capture pre-construction conditions). Due to the distance of the project from the Offshore Site, the main potential pathway for cumulative effect is underwater sound for marine mammals. This project is located close to Lambay Island SAC and Rockabill to Dalkey Island SAC. However, the site investigations are considered to have a localised area of disturbance (up to 5 km from the project (Codling Wind Park Ltd, 2022b)) which would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore and therefore there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
Mares Connect Electricity Interconnector (CAB02)	Cable	Tier 3 Project in Plan / Programme	68	Installation of Mares Connect Electricity subsea cable is expected to commence in 2030. Therefore, there may be some temporal overlap with the Proposed Works Offshore. Due to the distance of the project from the Proposed Works Offshore, the main potential pathway for cumulative effect is underwater sound. Underwater sound modelling has not yet been developed for this project. Due to the distance of this project from the Proposed Works Offshore, there is potential for cumulative disturbance effects. However, if project timings coincide, any overlapping disturbance would be temporary, intermittent, and spatially limited with few individuals expected to be affected. Therefore, this project has not been considered further in Stage 2.
Site investigation activities to inform the development of the North Irish Sea Array (NISA) offshore windfarm (OWF) and export cable, off the coasts of counties Dublin, Meath and Louth (SI28)	Site investigations	Tier 1 Approved	78.5	The programme for North Irish Sea Array Offshore Wind Farm development is currently unknown but there is potential for some overlap with the Proposed Works Offshore. This project is located close to Lambay Island SAC and Rockabill to Dalkey Island SAC. However, the site investigations are considered to have a localised area of disturbance which would not overlap with the maximum ZoI of 45.5 km for the Proposed Works Offshore and therefore there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
MaresConnect Electricity Interconnector Site Investigation. The proposed works includes surveys 50m landward of the high-water mark to overlap with the terrestrial survey works (SI13)	Site investigations	Tier 1 Approved	81.06	Site investigation works are proposed to take up to three years in total (except for fish and shellfish surveys, benthic and intertidal surveys, and intertidal walkover survey to extend up to seven years to also capture pre-construction conditions). Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. Underwater sound modelling has not yet been developed for this project. However, the area of disturbance is expected to be small and therefore there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Geotechnical investigation required to support the design of a proposed 250m Offshore Renewable Energy (ORE) capable quay extension in the River Suir at the Port of Waterford, Belview, Co. Kilkenny (SI33)	Site investigations	Tier 1 Application submitted	83.6	The programme for geotechnical surveys is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. Underwater sound modelling has not been developed for this project. However, the area of disturbance is expected to be small. Some minor disturbance may occur within the River Barrow and River Nore SAC (Malone O'Regan Environmental, 2023), however, this European site is outside of the maximum ZoI of 45.5 km for the Proposed Works Offshore and therefore there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
Geophysical survey and localised site investigation to define a route for a proposed submarine fibre optic cable (SI34)	Site investigations	Tier 1 Approved	85.1	The programme for geophysical surveys is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, underwater sound production from this project is considered to be minimal and comparable to lobster pot dropping (IWDG Consulting, 2016) which creates minimal noise and there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
Lir Offshore Array Ltd., Site Investigations for the proposed Lir Offshore Array, off Counties Louth, Meath and Dublin (SI35)	Site investigations	Tier 1 Application submitted	87.2	The programme for Lir Offshore Array site investigations is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. Underwater sound modelling and disturbance ranges have not been produced for this project. However, the area of disturbance is expected to be small and underwater sound production is considered to be minor (Lir Offshore Array Limited, 2021) and therefore there is considered to be no potential for cumulative effects with the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.
East Celtic Offshore Wind Park - RWE Renewables. SI for East Celtic Offshore Wind Park off Wexford & Waterford (geophysical, geotechnical, environmental & metocean) (SI36)	Site investigations	Tier 1 Application submitted	87.26	The programme for East Celtic Offshore Wind Park site investigations is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, underwater sound production from this project is not expected to overlap with the 45.5 km maximum ZoI for the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.

Other developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Offshore Renewable Energy Capable Terminal (Belview), including reclamation works and piling (SHP05)	Port	Tier 1 Application submitted	88.8	The programme for the Offshore Renewable Energy Capable Terminal is currently unknown but there is potential for some overlap with the Proposed Works Offshore. Due to the distance of the development from the Offshore Site, the main potential pathway for cumulative effect is underwater sound. However, underwater sound production from this project is not expected to overlap with the 45.5 km maximum ZoI for the Proposed Works Offshore. Therefore, this project has not been considered further in Stage 2.

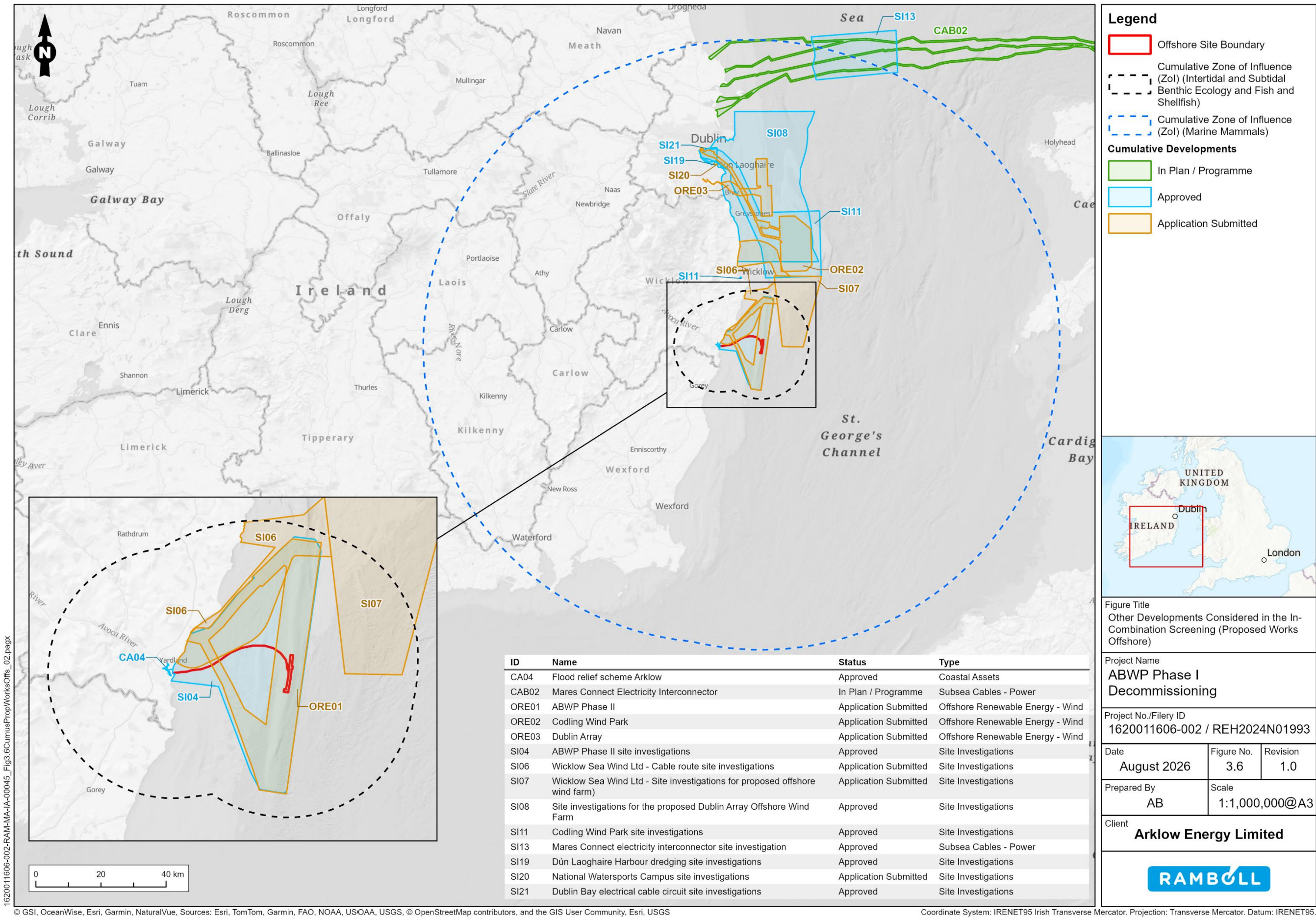


Figure 3.6: Other developments considered in the in-combination screening (Proposed Works Offshore) within 50 km

3.4 Conclusion of the Stage 1 Screening Appraisal for Appropriate Assessment for the Offshore Works

- 3.4.1.1 The Stage 1 screening appraisal for AA has been completed in compliance with EU and Irish law and the relevant EC and national guidelines to determine whether or not Likely Significant Effects on any European site could be excluded as a result of the Proposed Works Offshore.
- 3.4.1.2 The Stage 1 screening appraisal for AA has been carried out in accordance with best scientific knowledge, and taking into consideration each of the relevant European sites' CO, to ascertain if the Proposed Works Offshore, on their own or in combination with any other known plan or project, would be likely to have a significant effect on any of the relevant European sites. For the avoidance of doubt, it is confirmed that only embedded mitigation measures were considered as part of the screening assessment carried out, but not additional mitigation measures, i.e. measures intended to avoid or reduce the significance of potential impacts.
- 3.4.1.3 The conclusion of the Stage 1 screening appraisal for AA is that the following potential Likely Significant Effects should be considered further in Stage 2 Appraisal for AA:
- Potential Likely Significant Effects on fish qualifying features of the Slaney River Valley SAC (located 13.9 km west) and River Barrow and River Nore SAC (located 48.4 km south), due to increased SSC and associated deposition and underwater sound generation from SBP and vessels;
 - Potential Likely Significant Effects on marine mammal qualifying features of the Slaney River Valley SAC (harbour seal; 13.9 km west) and Blackwater Bank SAC (harbour porpoise; 29.2 km south), due to underwater sound generation from SBP, other equipment and vessel positioning systems.
- 3.4.1.4 Overall, the above Likely Significant Effects cannot be ruled out based on scientific evidence available at the time of writing of this AA Screening Report and have been screened in on a precautionary basis.

4 Onshore

4.1 The Proposed Works Onshore

- 4.1.1.1 This section describes the location and characteristics of the decommissioning of onshore infrastructure (the Proposed Works Onshore) for the purposes of the AA screening process.
- 4.1.1.2 The approach / presentation of the AA screening in relation to the Proposed Works Onshore has been adapted to ensure the AA screening is proportionate to the scale and potential impact pathways associated with Proposed Works Onshore.

4.1.2 Location of the Onshore Site

- 4.1.2.1 The Proposed Works Onshore will be undertaken within the Onshore Site (**Figure 4.1**), which includes:
- The fenced onshore substation compound where the onshore substation and ancillary equipment is located; and
 - A 10 m cable corridor along the onshore cable route between the landfall point at HWM and the onshore substation compound boundary.
- 4.1.2.2 The Onshore Site also includes the area that will temporarily be used for the temporary storage of plant, machinery, excavated soil and materials.

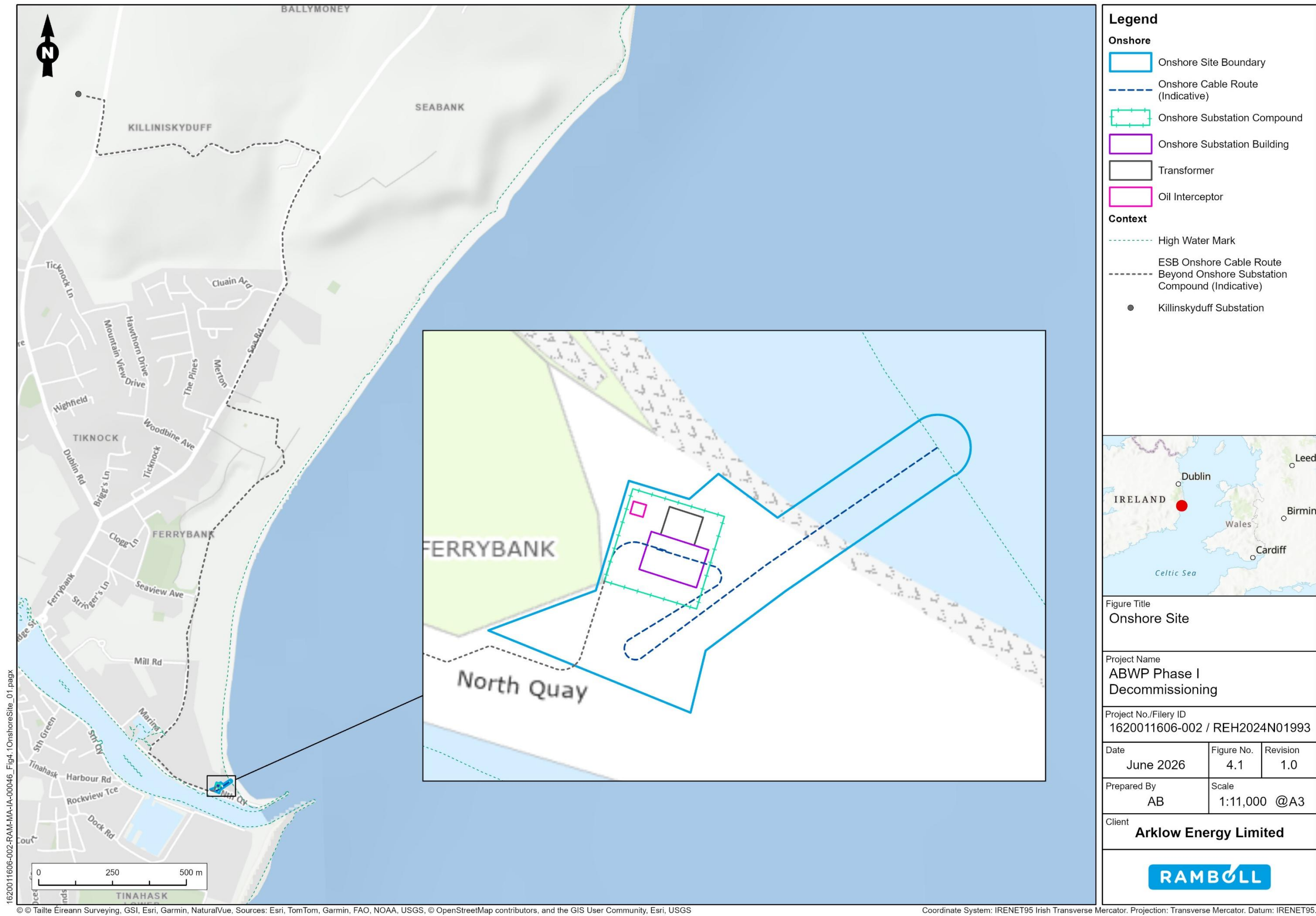


Figure 4.1: Onshore Site

4.1.3 Onshore Site Description

- 4.1.3.1 The following Onshore Site description is based on a desk study and extended survey undertaken in February 2026 following the *Guide to Habitats* survey (Fossitt, 2000), see **Appendix B**. It should be noted that since the Onshore Preliminary Ecological Appraisal was prepared, the Onshore Site boundary has been revised to include the area that will temporarily be used for the temporary storage of plant, machinery, excavated soil and materials, located within "Spoil and Bare Ground" (ED2).
- 4.1.3.2 The Onshore Site is bound to the:
- North by the Arklow Wastewater Treatment Plant, Marina Village and Arklow Shipping, beyond which is an athletic track and areas of green space including Arklow Duckpond and Kynoch Park;
 - East by the northern pier, beyond which is the Irish Sea;
 - South by the Avoca river and Arklow South Pier, beyond which is Arklow Golf Club and arable fields; and
 - West by the Avoca river, beyond which is the centre of Arklow, including residential housing and commercial / industrial buildings.
- 4.1.3.3 Habitats present on site were found to be Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2) and Sea Walls, Piers and Jetties (CC1).
- 4.1.3.4 Buildings and Artificial Surfaces (BL3) included the substation building, areas of hardstanding and a fence. The substation building is of concrete construction and built in the 2000s. It has a pitched, tiled roof, however the roof void appeared to be completely sealed with no loft hatch or other access available. Some lifting and missing tiles were observed. A crack was present in the eastern eaves however this did not appear to give access to the roof void.
- 4.1.3.5 The hardstanding surrounding the substation building was mostly free from vegetation, however some scurvygrass *Cochlearia* sp., mosses, sea mayweed *Tripleurospermum maritimum*, buck's-horn plantain *Plantago coronopus*, gorse *Ulex* sp. and grasses were present within cracks and a small area of gravel.
- 4.1.3.6 A large 1:1 transformer was present within this area which constantly made significant noise. Old bird nests were observed on the transformer.
- 4.1.3.7 A fence line surrounded the substation compound. This fence had metal plates on its northern side, shielding the transformer from saline sea spray. This habitat type held some suitability for roosting bats, however due to the Onshore Site's location, lack of flight paths and foraging habitat, and high level of disturbance from noise and lighting, it was considered highly unlikely that bats would make use of the building.
- 4.1.3.8 Spoil and Bare Ground (ED2) habitats were found to the south-east of the substation compound and consisted of unsealed bare ground with approximately 20-30% ground cover of ruderal and ephemeral species, such as kidney vetch *Anthyllis vulneraria*, sea mayweed, sedge *Carex* sp., buck's-horn plantain, broad-leaved dock *Rumex obtusifolius*, red fescue *Festuca rubra*, gorse, scurvygrass, curled dock *Rumex crispus*, ragwort *Jacobaea vulgaris* and spear thistle *Cirsium vulgare*. This habitat could support a small population of a common insect assemblage.
- 4.1.3.9 Sea walls, Piers and Jetties (CC1) habitat was comprised of a band of large rocks used for coastal protection (riprap) found in the north of the Onshore Site, extending down to the MHW mark. No significant vegetation or seaweed was observed in this area. Seal species could make use of this habitat for resting.
- 4.1.3.10 No invasive non-native species were identified during the 2026 survey.

4.1.4 Proposed Works Onshore Activities

- 4.1.4.1 The Proposed Works Onshore include decommissioning the onshore substation and removing the onshore cable.
- 4.1.4.2 The sequence for decommissioning the onshore substation and ancillary facilities within the fenced compound of the Onshore Site will comprise:
- In collaboration with Electricity Supply Board (ESB), termination and isolation of 38 kV and 400 V electricity supplies;

- Removal of cooling oil from transformer via oil tanker and transport to a licensed waste facility for decontamination;
- Transportation of transformer to a licensed waste facility for further decontamination of residue oils and contaminants prior to metallic recycling / processing;
- Removal of grey water from submerged oil interceptor tank, to be subsequently excavated and removed;
- Excavation and removal of concrete bund;
- Dismantling and removal of all equipment within the onshore substation building, including switchgear, servers, programmable logic controller (PLC), uninterruptible power supply (UPS), communication infrastructure, etc) for the onward recycling/transportation to a licensed waste facility for further processing and disposal. All cables are anticipated to be processed through a copper granulation plant for optimal environmental outcomes; and
- Dismantling of onshore substation building structure, followed by clearance and levelling, anticipated to include reinstatement using hardcore.

4.1.4.3 Onshore cable removal works will commence once the fenced compound area is vacant and reinstated so that it can also be used to temporarily store machinery, vehicles and excavated soil during onshore cable removal works, which will comprise:

- Set up of exclusion zones and signage along the onshore cable route covered by the Proposed Works Onshore (approximately 30 m long);
- Verify the location and depth of the cable using a cable detector;
- Begin excavation at one end of the cable route, maximum excavation width of 3 m and cut sections of the cable as necessary, extracting the cable from the trench using mechanical aids, and placing removed cable sections in appropriate containers for transport and disposal; and
- Backfill and compact excavated trench with excavated soil previously stored within the fence compound area for reinstatement.

4.1.4.4 Reasonable endeavours will be undertaken to fully remove the onshore cable, however, some sections may be left *in situ* if cable pulling becomes unfeasible, which may be particularly relevant for the section of the onshore cable located below the rock revetment (approximately 5 m in length).

Design Measures

4.1.4.5 **Table 4.1** outlines the design measures considered as part of the Proposed Works Onshore.

Table 4.1: Embedded mitigation relevant to Proposed Works Onshore

Embedded Mitigation	Notes
Development and adherence to the Detailed Onshore DEMP	Volume 3, Appendix 3.1: Outline Onshore DEMP presents standard industry practice and legal requirements for environmental management and mitigation during Proposed Works Onshore, serving as a framework for the decommissioning contractor(s) to develop in detail before decommissioning works commence.
Development and adherence to the Detailed Traffic Management Plan (TMP)	Volume 3, Appendix 3.2: Outline TMP provides a framework to ensure that traffic associated with the Proposed Works Onshore are managed safely and efficiently, while minimising disruption to the local road network and surrounding communities.
Development and adherence to the Detailed Onshore WMP	Volume 3, Appendix 3.3: Outline Onshore WMP provides a framework for managing waste generated during the Proposed Works Onshore, in accordance with standard industry practice and relevant waste legislation, and the principles of the waste hierarchy.

4.2 Stage 1 Screening Appraisal for the Appropriate Assessment – Onshore

4.2.1 Ascertaining whether the Project is Directly Connected with, or Necessary to, the Management of a European Site

- 4.2.1.1 The Proposed Works Onshore are not directly connected with, or necessary to, the conservation management of any European site and as such, shall be subject to the provisions of the Article 6(3) procedure laid down by the Habitats Directive and its national implementing legislation.

4.2.2 Establishing Potential Impact Pathways and Zone of Influence

- 4.2.2.1 In line with the Office of the Planning Regulator (OPR) (2021) and EC guidance (2021), the likely ZoI of the Proposed Works Onshore, i.e. the area over which qualifying features may be affected by environmental changes as a result of the Proposed Works Onshore, should be defined using a source-pathway-receptor model, where 'source' corresponds to individual elements of the Proposed Works Onshore that have the potential to affect a European site and associated qualifying features ('receptors') through a given 'pathway', i.e. means or route by which a source can affect receptors. Effects are created when there is a linkage between the source, pathway and receptor.
- 4.2.2.2 Existing guidance notes (OPR, 2021) recommend consideration of a 15 km screening distance for designated sites, noting that this should be evaluated on a case-by-case basis, avoiding the use of arbitrary distances. To determine screening distance, the ZoI can be used.
- 4.2.2.3 Based on the Proposed Works Onshore activities described in **Section 4.1.4**, potential impact pathways have been identified, indicating the anticipated scale of potential impacts, and relevant marine receptor groups potentially affected, that should inform the ZoI to be used in AA screening.
- 4.2.2.4 Potential impact pathways on European sites resulting from the Proposed Works Onshore include:
- **Disturbance of fauna**, where activities may temporarily introduce elevated noise and vibration levels or generate dust. Movement of plant and machinery within the Onshore Site is likely to create an elevated noise and vibration level within the immediate vicinity during demolition. Whilst embedded mitigation measures to control noise and vibration levels are to be included in the Onshore DEMP to ensure the Proposed Works Onshore align with BS 5228-1:2009+A1:2014 standards or equivalent, it is likely that levels during the Proposed Works Onshore will still exceed those at baseline. A noise and vibration assessment has not been considered necessary for the Proposed Works Onshore due to the standard nature of the decommissioning methods proposed. During Proposed Works Onshore, there is the potential for airborne dust to be created. Standard demolition mitigation measures to be included within the Onshore DEMP such as repeatedly wetting material will minimise the risk of dust production. Dust production is therefore not considered to be a potential impact pathway for the Proposed Works Onshore and is not considered further;
 - **Increased risk of INNS introduction and spread**, where vehicles and machinery are brought to the Onshore Site. The Onshore DEMP will include biosecurity measures to manage and control potential risks of INNS introduction from vehicles and machinery accessing the Onshore Site. In addition, no in-stream works are proposed and no direct hydrological pathway for the spread of INNS will be created. Overall, increased risk of INNS introduction and spread is not considered to be a potential impact pathway for the Proposed Works Onshore and is not considered further;
 - **Accidental release of pollutants**, where refuelling of machinery / draining of the transformer is undertaken. Standard demolition mitigation measures to be included within the Onshore DEMP, such as the use of spill kits will minimise the risk of pollution / spill incidents. The accidental release of pollutants is therefore not considered to be a potential impact pathway for the Proposed Works Onshore and is not considered further; and
 - **Habitat loss**. The Proposed Works Onshore will involve the temporary loss of a small area of Spoil and Bare Ground (ED2) and the permanent loss of a small area of Buildings and Artificial Surfaces (BL3).
- 4.2.2.5 Based on the potential impact pathways likely to result from the Proposed Works Onshore, the maximum ZoIs used for each terrestrial receptor group in this AA screening are as follows:

- **Annex I Habitats:** A search of all SACs and SPAs within a precautionary 15 km radius of the Onshore Site found no references to vibration or noise within the Conservation Objectives for any Annex I habitats, and therefore this is not considered to be a relevant impact pathway for this receptor. Habitat loss is therefore the only potential impact pathway and the ZoI is therefore restricted to the Onshore Site.
- **Otters:** Whilst no noise or vibration assessment of the Proposed Works Onshore has been undertaken, the list of works in **Section 4.1.4** are not anticipated to produce significantly higher levels of noise or vibration than standard construction work and therefore planning advice has been reviewed to determine the ZoI for otters. General planning advice (NatureScot, 2018) suggests that all suitable habitat within 200 m of a site is surveyed for otters. This has therefore been taken as the ZoI for noise and vibration disturbance for otter holts. Noise and vibration impacts would also be restricted to the daytime, when otters are less likely to be active. Habitats within the Onshore Site are considered to be unsuitable for use by otters, therefore habitat loss is not considered to be a relevant impact pathway for this receptor.
- **Marine Annex II species:** Impacts on marine Annex II species such as sea lamprey are primarily assessed within the Offshore section of this report and are excluded from the ZoI of the Proposed Works Onshore. No standard planning advice is available for noise and vibration impacts from terrestrial works on marine Annex II species, therefore a standard precautionary ZoI of 15 km has been taken for this impact pathway.
- **Other Annex II species:** There are no habitats present within the Onshore Site with suitability for freshwater Annex II species such as freshwater pearl mussel *Margaritifera margaritifera* and brook lamprey *Lampetra planeri*, therefore habitat loss for these species is not considered further. A search of all SACs and SPAs within a precautionary 15 km radius of the Onshore Site found no references to vibration or noise within the Conservation Objectives for any Annex II species. No standard planning advice is available for noise and vibration impacts on other Annex II species, therefore a standard precautionary ZoI of 15 km has been taken for this impact pathway.

4.2.2.6 All SACs and SPAs included within the precautionary 15 km radius search and their Conservation Objectives are listed in **Table 3, Appendix A**.

4.2.3 European Sites within Zone of Influence and Relevant Qualifying Features to be Considered

- 4.2.3.1 There are no SACs or SPAs located within the Onshore Site, but four SACs and no SPAs sites are present within the ZoI, as illustrated in **Figure 4.2** and listed in **Table 4.2**. The information contained in these tables is based on publicly available data sourced from the NPWS website.
- 4.2.3.2 Conservation Objectives for each SAC and SPA within the ZoI of the Proposed Works Onshore are listed in **Table 3, Appendix A**.

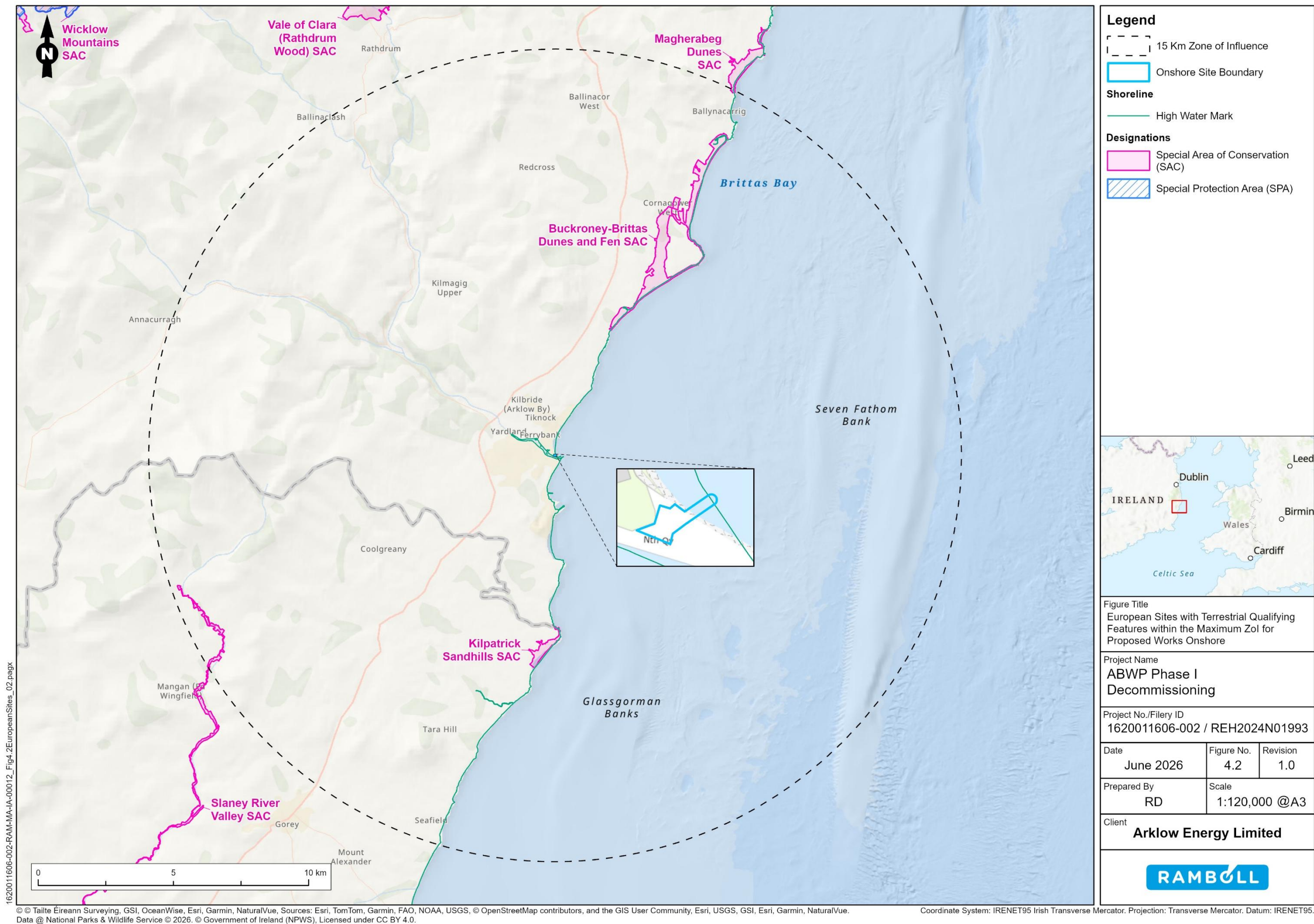


Figure 4.2: European sites with terrestrial qualifying features within the maximum ZoI for Proposed Works Onshore

Table 4.2: Proposed Works Onshore - Impact Pathway Screening for European sites

European site code	European site name	Distance to the Onshore Site	Relevant Qualifying feature(s)
000729	Buckroney-Brittis Dunes and Fen SAC	5.2 km	Annex I habitats: • Annual vegetation of drift lines [1210]; • Perennial vegetation of stony banks [1220]; • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]; • Embryonic shifting dunes [2110]; • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]; • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; • Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150]; • Humid dune slacks [2190]; and • Alkaline fens [7230].
001742	Kilpatrick Sandhills SAC	6.3 km	Annex I habitats: • Annual vegetation of drift lines [1210]; • Embryonic shifting dunes [2110]; • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]; • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; and • Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150].
000781	Slaney River Valley SAC	13.9 km	• Annex I habitats: Mudflats and sandflats not covered by seawater at low tide [1140]; • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]; • Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]; • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]; and • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]. Designated for Annex II species: • Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) [1029]; • Sea lamprey (<i>Petromyzon marinus</i>) [1095]; • Brook lamprey (<i>Lampetra planeri</i>) [1096]; • River lamprey (<i>Lampetra fluviatilis</i>) [1099]; • Twaite shad (<i>Alosa fallax fallax</i>) [1103]; • Salmon (<i>Salmo salar</i>) [1106]; • Otter (<i>Lutra lutra</i>) [1355]; and • Harbour seal (<i>Phoca vitulina</i>) [1365].
001766	Magherabeg Dunes SAC	14.9 km	Annex I habitats: • Annual vegetation of drift lines [1210]; • Embryonic shifting dunes [2110]; • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]; • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; and

European site code	European site name	Distance to the Onshore Site	Relevant Qualifying feature(s)
			Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220].

4.2.3.3 All European sites were considered in this section, including those with marine qualifying features (i.e. those seaward of the HWM), however, no marine sites fall within the ZoI of the Proposed Works Onshore.

4.2.4 Screening Assessment

4.2.4.1 **Table 4.3** outlines the baseline information for each European site taken forward for assessment, including a summary of the COs, and provides a screening assessment for whether Likely Significant Effects from Proposed Works Onshore can be ruled out or otherwise, based on the potential impact pathways identified in **Section 4.2.2**.

Table 4.3: Screening Assessment for the Proposed Works Onshore

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
000729	Buckroney-Brittass Dunes and Fen SAC	5.2 km north-east	Annex I habitats: - Annual vegetation of drift lines [1210] – no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain range, maintain presence of species-poor communities, negative indicator species to have <5% cover; - Perennial vegetation of stony banks [1220] – no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain range, maintain vegetated shingle communities, negative indicator species to have <5% cover; - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] – no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain creek and pan structure, maintain natural tidal regime, maintain range of coastal habitats, maintain variation in sward, maintain >90% of areas outside of creeks vegetated, maintain range of sub-communities with typical species, prevent establishment of common cordgrass <i>Spartina anglica</i>; - Embryonic shifting dunes [2110] - no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain range of coastal habitats, maintain presence of species-poor communities with typical species, negative indicator species to have <5% cover; - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain range of coastal habitats, more than 95% of marram grass <i>Ammophila arenaria</i> and/or lyme-grass <i>Leymus arenarius</i> should be healthy, maintain presence of species-poor communities, negative indicator species to have <5% cover; - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] – no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, bare ground no more than 10% of dune habitat, maintain variation within sward height, maintain range of coastal habitats, maintain range of sub-	There are no potential impact pathways from the Proposed Works Onshore to Buckroney-Brittass Dunes and Fen SAC. The qualifying features present within this SAC are not sensitive to temporarily elevated noise and vibration levels and additionally due to the distance from the Onshore Site, temporarily elevated noise and vibration levels are not anticipated to be noticeable at the SAC. The temporary and permanent loss of habitats at the Onshore Site would have no effect on the qualifying features present at this SAC. Overall, no Likely Significant Effects associated with disturbance or habitat loss on the COs of habitat qualifying features of this SAC are anticipated, and Likely Significant Effects can be ruled out at the screening stage and without a requirement for Project-specific mitigation measures.

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
			communities with typical species present, negative indicator species and scrub/trees to have <5% cover; - Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] - no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, bare ground no more than 10% cover, maintain sward height variation, maintain range of coastal habitats, maintain range of sub-communities with typical species, negative indicator species and scrub/trees to have <5% cover; - Humid dune slacks [2190] - no decline or change in habitat area or distribution, no changes to the circulation of sediment and organic matter, maintain hydrological regime, bare ground less than 5% cover (except pioneer slacks), maintain sward height variation, maintain range of coastal habitats, maintain range of sub-communities with typical species, maintain <40% creeping willow <i>Salix repens</i> cover, negative indicator species and scrub/trees to have <5% cover; and - Alkaline fens [7230] – no COs listed.	
001742	Kilpatrick Sandhills SAC	6.3 km south	Kilpatrick Sandhills SAC supports the following qualifying features: Annex I habitats: - Annual vegetation of drift lines [1210] - no decline or change in habitat area or distribution, maintain natural circulation of sediment and organic matter, maintain range/zonation of coastal habitats, maintain presence of species-poor strandline communities with typical species, negative indicator species to represent <5% cover; - Embryonic shifting dunes [2110] - no decline or change in habitat area or distribution, maintain natural sediment supply and circulation (no physical barriers), maintain range/zonation of coastal habitats, ensure plant health of foredune grasses (>95% of sand couch and/or lyme-grass healthy), maintain presence of species-poor embryonic communities with typical species, negative indicator species to represent <5% cover; - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - no decline or change in habitat area or distribution, maintain natural sediment supply and circulation (no physical barriers), maintain range/zonation of coastal habitats, ensure plant health of dune grasses	There are no potential impact pathways from the Proposed Works Onshore to Kilpatrick Sandhills SAC. The qualifying features present within this SAC are not sensitive to temporarily elevated noise and vibration levels and additionally due to the significant distance from the Onshore Site, temporarily elevated noise and vibration levels are not anticipated to be noticeable at the SAC. The temporary and permanent loss of habitats at the Onshore Site would have no effect on the qualifying features present at this SAC. Overall, no Likely Significant Effects associated with disturbance or habitat loss on the COs of habitat qualifying features of this SAC are anticipated, and Likely Significant Effects can be ruled out at the screening stage and without a requirement for Project-specific mitigation measures.

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
			(>95% of marram and/or lyme-grass healthy), maintain presence of species-poor communities dominated by marram/lyme-grass with associated shore species, negative indicator species to represent <5% cover (with sea buckthorn absent or effectively controlled); - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] - Fixed coastal dunes with herbaceous vegetation (grey dunes) – no decline or change in habitat area or distribution, maintain natural circulation of sediment and organic matter, maintain range/zonation of coastal habitats, bare ground no more than 10% of dune habitat, maintain structural variation in sward height, maintain range of sub-communities with typical species, negative indicator species to represent <5% cover, scrub/trees no more than 5% cover or under control; and - Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] - no decline or change in habitat occurrence/distribution (area potentially present but unmapped), maintain natural circulation of sediment and organic matter, maintain range/zonation of coastal habitats, bare ground no more than 10% of dune habitat, maintain structural variation in sward height, maintain range of sub-communities with typical species, negative indicator species to represent <5% cover, scrub/trees no more than 5% cover or under control.	
000781	Slaney River Valley SAC	13.9 km south-west	Slaney River Valley SAC supports the following qualifying features: Annex I habitats: - Mudflats and sandflats not covered by seawater at low tide [1140] – no COs listed; - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] – no COs listed; - Water courses of plain to montane levels with the <i>Ranunculum fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] - no decline in habitat distribution, maintain habitat area, maintain appropriate hydrological regimes, substratum dominated by sand-gravel with silt at margins for the tidal sub-type, maintain low nutrient concentrations to prevent compositional change, typical species of the relevant sub-type to reach favourable status, maintain active floodplain connectivity/area; - Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] - habitat area stable or increasing, no decline	There are no potential impact pathways from the Proposed Works Onshore to Slaney River Valley SAC. Whilst otters are present within this SAC and are sensitive to temporarily elevated noise and vibration levels, due to the significant distance from the Onshore Site (13.9 km), temporarily elevated noise and vibration levels are not anticipated to be noticeable at the SAC. The temporary and permanent loss of habitats at the Onshore Site would have no effect on the qualifying features present at this SAC, as habitats on the Onshore Site are unsuitable for otters and no riverine or marine habitats are present within the site boundary which could be used by brook lamprey, river lamprey, sea lamprey, twaite shad, salmon or harbour seal. Additionally, the Onshore Site falls entirely outside of the Slaney River catchment and is further separated from the catchment by the Avoca River.

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
			in habitat distribution, woodland size stable or increasing; and - Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] - restore favourable condition: habitat area stable or increasing, no decline in distribution, woodland size stable or increasing, maintain diverse canopy and subcanopy structure with well-developed herb layer, maintain diversity and extent of community types, ensure natural regeneration, maintain appropriate flooding regime/groundwater levels, retain, veteran trees no decline, indicators of local distinctiveness no decline, native tree cover and typical species no decline, negative/invasive species absent or under control. Designated for Annex II species: - Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) [1029]- no COs listed as status is under review; - Sea lamprey (<i>Petromyzon marinus</i>) [1095] - >75% of main stem length accessible from estuary, ≥ 3 age/size groups present, juvenile density in fine sediment $\geq 1/m^2$, extent/distribution of spawning habitat no decline, availability of juvenile habitat (>50% of sample sites positive); - Brook lamprey (<i>Lampetra planeri</i>) [1096] - access available to all water courses down to first order streams, ≥ 3 age/size groups of river/brook lamprey present, juvenile density in fine sediment $\geq 2/m^3$, extent/distribution of spawning habitat no decline, availability of juvenile habitat (>50% of sample sites positive); - River lamprey (<i>Lampetra fluviatilis</i>) [1099] - >75% of main stem and major tributaries down to 2nd order accessible from estuary), ≥ 3 age/size groups of river/brook lamprey present, juvenile density in fine sediment $\geq 2/m^3$, extent/distribution of spawning habitat no decline, availability of juvenile habitat (>50% of sample sites positive); - Twaite shad (<i>Alosa fallax fallax</i>) [1103] - >75% of main stem length accessible from estuary, more than one age class present, extent/distribution of spawning habitat no decline, oxygen ≥ 5 mg/l, spawning habitat quality: stable gravel substrate with very little fine material and free of filamentous algal and macrophyte overgrowth;	Overall, no Likely Significant Effects associated with disturbance or habitat loss on the COs of habitat and species qualifying features of this SAC are anticipated, and Likely Significant Effects can be ruled out at the screening stage and without a requirement for Project-specific mitigation measures.

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
			- Salmon (<i>Salmo salar</i>) [1106] - 100% of river channels down to 2nd order accessible from estuary, adult spawning fish (Conservation Limit for each system consistently exceeded limit), maintain or exceed 0+ fry mean catchment-wide abundance threshold value — currently 17 fry/5 min sampling, no significant decline in out-migrating smolt abundance, no anthropogenic decline in number/distribution of reeds, water quality at least Q4 at all EPA sampled sites; - Otter (<i>Lutra lutra</i>) [1355] - no significant decline in distribution, no significant decline in extent of habitat, no significant decline in couching sites and holts, no significant decline in fish biomass available, no significant increase in barriers to connectivity; and - Harbour seal (<i>Phoca vitulina</i>) [1365] - access to suitable habitat not restricted by artificial barriers, breeding/moult/haul-out/resting sites maintained in a natural condition, human disturbance at levels that do not adversely affect the population at the site.	
001766	Magherabeg Dunes SAC	14.9 km north-east	Magherabeg Dunes SAC supports the following qualifying features: Annex I habitats: - Annual vegetation of drift lines [1210] – no decline or change in habitat area or distribution, maintain natural circulation of sediment and organic matter, maintain range/zonation of coastal habitats, maintain presence of species-poor strandline communities with typical species, negative indicator species to represent <5% cover; - Embryonic shifting dunes [2110] - no decline or change in habitat area or distribution, maintain natural sediment supply and circulation, maintain range/zonation of coastal habitats, ensure plant health of foredune grasses (>95% of <i>Elytrigia juncea</i> and/or <i>Leymus arenarius</i> healthy), maintain presence of species-poor embryonic communities with typical species, negative indicator species to represent <5% cover; - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - no decline or change in habitat area or distribution, maintain natural sediment supply and circulation, maintain range/zonation of coastal habitats, ensure plant health of dune grasses (>95% of <i>Ammophila arenaria</i> and/or <i>Leymus arenarius</i> healthy), maintain presence of species-poor marram/lyme-grass communities	There are no potential impact pathways from the Proposed Works Onshore to Magherabeg Dunes SAC. The qualifying features present are not sensitive to temporarily elevated noise and vibration levels and additionally due to the significant distance from the Onshore Site, temporarily elevated noise and vibration levels are not anticipated to be noticeable at the SAC. The temporary and permanent loss of habitats at the Onshore Site would have no effect on the qualifying features present at this SAC. Overall, no Likely Significant Effects associated with disturbance or habitat loss on the COs of habitat qualifying features of this SAC are anticipated, and Likely Significant Effects can be ruled out at the screening stage and without a requirement for Project-specific mitigation measures.

Site Code	Site Name	Distance to the Onshore Site	Summary of Conservation Objectives for each Qualifying Feature – full COs are listed in Table 3, Appendix A	Potential Effects
			with associated shore species, negative indicator species to represent <5% cover (with <i>Hippophae rhamnoides</i> absent or effectively controlled); - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] - no decline or change in habitat area or distribution, maintain natural circulation of sediment and organic matter, maintain range/zonation of coastal habitats, bare ground no more than 10% of dune habitat, maintain structural variation in sward height, maintain range of sub-communities with typical species, negative indicator species and scrub/trees to represent <5% cover; and - Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] - habitat area stable or increasing, habitat distribution no decline, maintain appropriate hydrological regime, water quality — nitrate no increase from baseline and <10 mg/l; phosphate no increase from baseline and <15 µg/l, vegetation composition — at least three positive/highquality indicator species per spring, negative indicator species not Dominant/Abundant and invasives absent, field layer height 10–50 cm (bryophyte dominated <10 cm), trampling/dung not Dominant/Abundant.	

4.3 In-Combination Screening

- 4.3.1.1 **Volume 3, Appendix 1.2** of the EIAR presents the onshore long list of other developments considered and reviewed as part of stages 1 and 2 of the cumulative screening process to inform the AA Screening Report prepared in support of the planning application for the Proposed Works.
- 4.3.1.2 Stage 2 screening criteria applied has considered the findings presented in **Section 4.2**, which notes that qualifying features of European sites located within 15 km from the Onshore Site include:
- Annex I habitats, which would only be vulnerable to habitat loss resulting from Proposed Works Onshore. However, given that the closest Annex I habitat is located within 5.2 km (Buckroney-Brittis Dunes and Fen Special Area of Conservation (SAC)), Likely Significant Effects, from Proposed Works Onshore, alone or in-combination with other plans and project can be ruled out;
 - Otters, which would only be vulnerable to airborne noise and vibration generated by Proposed Works Onshore within approximately 200 m. However, given that, within 15 km, the only European site with otter qualifying features is located within 13.9 km (Slaney River Valley SAC), with which the Onshore Site has no connectivity, and the fact that the Onshore Site and its immediate vicinity is not considered a suitable habitat for otters, Likely Significant Effects, from Proposed Works Onshore, alone or in-combination with other plans and project can be ruled out; and
 - Marine and other Annex II species, which would only be vulnerable to airborne noise and vibration generated by Proposed Works Onshore. However, given that, within 15 km, the only European site with marine and other Annex II qualifying features is located within 13.9 km (Slaney River Valley SAC) with which the Onshore Site has no connectivity, and the fact that the Onshore Site has no connectivity with marine / surface waters, Likely Significant Effects, from Proposed Works Onshore, alone or in-combination with other plans and project can be ruled out.

4.4 Conclusion of the Stage 1 Screening Appraisal for Appropriate Assessment for the Proposed Works Onshore

- 4.4.1.1 The Stage 1 screening appraisal for AA has been completed in compliance with EU and Irish law and the relevant EC and national guidelines to determine whether or not Likely Significant Effects on any European site could be excluded as a result of the Proposed Works Onshore.
- 4.4.1.2 The Stage 1 screening appraisal for AA has been carried out in accordance with best scientific knowledge, and taking into consideration each of the relevant European sites' CO, to ascertain if the Proposed Works Onshore, on their own or in-combination with any other known plan or project, would be likely to have a significant effect on any of the relevant European sites. For the avoidance of doubt, it is confirmed that only embedded mitigation measures were considered as part of the screening assessment carried out, but not additional mitigation measures, i.e. measures intended to avoid or reduce the significance of potential impacts.
- 4.4.1.3 The conclusion of the Stage 1 screening appraisal for AA is that potential Likely Significant Effects can be ruled out, based on scientific evidence available at the time of writing of this AA Screening Report, and potential Likely Significant Effects do not need to be considered further in Stage 2 Appraisal for AA.

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Appendix A Conservation Objectives of European Sites Considered

Table 1: SPAs considered in this report, including qualifying features and associated habitat, food and feeding preferences, as well as Conservation Objectives (COs) (Offshore).

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
004127	Wicklow Head SPA	15.0 km	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Spends most of their time in the marine environment; Mainly feeds from small fish, small squid, plankton, worms and jellyfish; Diving birds, to a maximum of approx. 1m.	To maintain or restore the favourable conservation condition of the bird species listed as SCIs for this SPA.
004186	The Murrough SPA	18.1 km	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Lakes, ponds, shallow marine waters and occasionally at sea; Feeds from fish and invertebrates; Dives underwater.	To maintain or restore the favourable conservation condition of the bird species listed as SCIs for this SPA.
			Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Lakes, ponds, wetlands, coastal; Omnivore; Mainly surface feeding but can plunge head under water also.	To maintain or restore the favourable conservation condition of the wetland habitat at The Murrough SPA as a resource for the regularly occurring migratory waterbirds that utilise it.
			Herring Gull (<i>Larus argentatus</i>) [A184]	Open water, coastal and inland; Feeds from invertebrates, fish, insects, seabirds, bird eggs, carrion, rubbish; Mainly surface feeding.	
			Little Tern (<i>Sterna albifrons</i>) [A195]	Strictly coastal species; Feeds from fish; Plunge diving.	
004237	Seas off Wexford SPA	26.1 km	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Lakes, ponds, shallow marine waters and occasionally at sea; Feeds from fish and invertebrates; Dives underwater.	To maintain or restore the favourable conservation condition of the bird species listed as SCIs for this SPA; which is defined by the breeding population size, spatial distribution, foraging extent, abundance and availability, disturbance across the site and barriers to connectivity to the SPA or other ecologically important sites outside the SPA.
			Fulmar (<i>Fulmarus glacialis</i>) [A009]	Marine, mostly in waters over continental shelf; Main foods are fish, cephalopods, amphipods, copepods, and other crustaceans, offal, and carrion;	

¹ All About Birds. Available at: [Black-legged Kittiwake Life History, All About Birds, Cornell Lab of Ornithology](#); Birdlife, available at: <http://datazone.birdlife.org/>; RSPB. Available at: <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/> [accessed on 06/09/2023]

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
				Obtains food by dipping, surface-seizing, surface-plunging, pursuit-diving, and scavenging.	
			Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Marine, occurring mainly on waters over continental shelf; Feeds mainly on schooling bait fish, especially herring, sardines, anchovies; Takes food by surface feeding (sometimes submerging head and neck) and pursuing prey underwater.	
			Gannet (<i>Morus bassanus</i>) [A016]	Exclusively marine, comes to land only to breed; Feeds on surface-schooling fish, including mackerel and herring; Primary foraging strategy plunge-diving.	
			Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Mainly coastal shoreline, rocky; Feeds from bottom dwelling fish; Known to dive up to approx. 30m deep to catch prey.	
			Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Marine; rarely in estuaries, has strong preference for rocky coasts and islands; Feed on almost exclusively fish, primarily sandeels; Diving birds; forage in mid-water and along the bottom of sandy and rocky seabeds.	
			Common Scoter (<i>Melanitta nigra</i>) [A065]	Coastal, open water, wetlands, shrubland; Feed from invertebrates, primarily molluscs, small fish and vegetation; Can dive to great depths, up to 30m for prey.	
			Mediterranean Gull (<i>Larus melanocephalus</i>) [A176]	Coasts, estuaries, harbours, marshes, inland lakes, fields and grasslands; Feeds on insects, fish, offal and carrion; Deploy several foraging techniques: shallow plunge diving, surface dipping, pattering and surface seizing.	
			Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Lakes, ponds, wetlands, coastal; Omnivore;	

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
				Mainly surface feeding but can plunge head under water also.	
			Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Frequents a wide diversity of coastal and inland waters, including the open sea; Diet diverse and opportunistic. Frequent items include small fish, aquatic invertebrates, birds' eggs and chicks, trawler discards, rodents and berries; Foraging methods include contact-dipping and surface-plunging.	
			Herring Gull (<i>Larus argentatus</i>) [A184]	Open water, coastal and inland; Feeds from invertebrates, fish, insects, seabirds, bird eggs, carrion, rubbish; Mainly surface feeding.	
			Kittiwake (<i>Rissa tridactyla</i>) [A188]	Spends most of their time in the marine environment; Mainly feeds from small fish, small squid, plankton, worms and jellyfish; Diving birds, to a maximum of approx. 1m.	
			Sandwich Tern (<i>Sterna sandvicensis</i>) [A191]	Strictly coastal species; such as open ocean and bays, inlets and outflows. Feed almost entirely small marine fish, squid, and crustaceans; Dive 5–7 m; may submerge completely or snatch prey in flight from just below surface.	
			Roseate Tern (<i>Sterna dougallii</i>) [A192]	Exclusively marine. Breeds on sandy, rocky islands, often with dense vegetation; Feeds almost exclusively on small marine fish; forage mainly by plunge-diving up to 12 m; also, by contact-dipping or surface-dipping.	
			Common Tern (<i>Sterna hirundo</i>) [A193]	Both coastal and inland areas; Main prey are small fish up to 150 mm long; they frequently and sometimes predominantly feed on crustaceans or insects, occasionally on squid;	

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
				Feed by plunge-diving, diving-to-surface, or contact-dipping.	
			Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Mainly coastal, but also far inland; Small fish to 150 mm long, crustaceans, insects; less frequently other invertebrates; Takes prey on the wing by plunge-diving, diving-to-surface, or contact-dipping.	
			Little Tern (<i>Sterna albifrons</i>) [A195]	Strictly coastal species; Feeds from fish; Plunge diving.	
			Guillemot (<i>Uria aalge</i>) [A199]	Most commonly found where prey concentrated by oceanographic fronts, tidal sheers; Feed on fish, euphausiids, large copepods, and squid; Prey captured in bill by diving to deep depths, often to 70 m and occasionally to 180 m.	
			Razorbill (<i>Alca torda</i>) [A200]	Marine, occurring offshore and along sea coasts; Main foods taken are schooling fish; Shallow water divers.	
			Puffin (<i>Fratercula arctica</i>) [A204]	Exclusively marine, occurring along rocky coasts and offshore islands; Predominantly small to mid-sized (5–15 cm length), schooling midwater fish, typically sandeels, sprat, capelin, whiting and saithe; Dive as deep as 40 meters.	
004019	The Raven SPA	42.0 km	Red-throated Diver [A001]	Lakes, ponds, shallow marine waters and occasionally at sea; Feeds from fish and invertebrates; Dives underwater.	To maintain the favourable conservation condition of the bird species listed as SCIs for this SPA, which is defined by the following list of attributes and targets: population trend (long term population trend stable or increasing) and number and range of areas used by waterbirds (there should be no significant decrease in the numbers or range of areas used by waterbird species,
			Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Mainly coastal shoreline, rocky; Feeds from bottom dwelling fish; Known to dive up to approx. 30m deep to catch prey.	
			Common Scoter (<i>Melanitta nigra</i>) [A065]	Coastal, open water, wetlands, shrubland;	

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
				Feed from invertebrates, primarily molluscs, small fish and vegetation; Can dive to great depths, up to 30m for prey.	other than that occurring from natural patterns of variation). To maintain the favourable conservation condition of the wetland habitat in The Raven SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target: wetland habitat area (the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,207ha, other than that due to natural patterns of variation).
004063	Poulaphouca Reservoir SPA	42.2 km	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Frequents a wide diversity of coastal and inland waters, including the open sea; Diet diverse and opportunistic. Frequent items include small fish, aquatic invertebrates, birds' eggs and chicks, trawler discards, rodents and berries; Foraging methods include contact-dipping and surface-plunging.	To maintain or restore the favourable conservation condition of the bird species listed as qualifying features for this SPA.
004076	Wexford Harbour and Slob SPA	42.9 km	Little Grebe (<i>Tachybaptus ruficollis</i>) [A004]	Wetlands, small lakes, ponds, canals, occasionally open waters, on coast, in estuaries; Mainly insects and larvae; Feeds mainly by diving for 10–25 seconds to depth of c. 1 m, rarely 2 m.	To maintain the favourable conservation condition of the bird species in Wexford Harbour and Slob SPA, which is defined by the following list of attributes and targets: population trend, distribution, breeding population abundance, productivity rate, prey biomass available, barriers to connectivity and disturbance at the breeding site, where applicable. To maintain the favourable conservation condition of the wetland habitat in Wexford Harbour and Slob SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.
			Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Fresh or brackish water; Mainly sizeable fish and eels; Pursuit diving.	
			Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Mainly coastal shoreline, rocky; Feeds from bottom dwelling fish; Known to dive up to approx. 30m deep to catch prey.	
			Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Saltmarshes, sand and shingle beaches; Mussels and other bivalves; Hammering, prising, probing, stabbing.	
			Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Lakes, ponds, wetlands, coastal; Omnivore;	

European site code	European site name	Distance to the site	Qualifying Feature(s)	Habitat, food and feeding preferences ¹	COs
				Mainly surface feeding but can plunge head under water also.	
			Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Frequents a wide diversity of coastal and inland waters, including the open sea; Diet diverse and opportunistic. Frequent items include small fish, aquatic invertebrates, birds' eggs and chicks, trawler discards, rodents and berries; Foraging methods include contact-dipping and surface-plunging.	
			Little Tern (<i>Sterna albifrons</i>) [A195]	Strictly coastal species; Feeds from fish; Plunge diving.	
			Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]	Lakes, ponds, coastal habitats; Herbivorous; Plucks terrestrial vegetation, may submerge head to reach marine vegetation.	
			Wetland and Waterbirds [A999]	A bird that lives in or around water, ecologically dependent upon water; Feeds from seeds, invertebrates, fish, plants; Variety of different feeding approaches, pecking, surface feeding, diving.	

Table 2: SACs considered in this report, including qualifying features and associated Conservation Objectives (COs) (Offshore).

European site code	European site name	Distance to the site	Qualifying Feature(s) (type) For fish species, detail on swim bladders is noted ²	COs
000781	Slaney River Valley SAC	13.9 km	<i>Petromyzon marinus</i> (Sea lamprey) [1095] (marine / freshwater)	To restore the favourable conservation condition of sea lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers

² Swim bladders in some fish species aid hearing and increase their sensitivity to underwater sound. Borowiec, B. G, Docker, M. F., Johnson, N. S., Moser, M. L., Zielinski, B., Wilkie, M. P. 2021. Exploiting the physiology of lampreys to refine methods of control and conservation. Journal of Great lakes Research. 47 (1) 723-71.

European site code	European site name	Distance to the site	Qualifying Feature(s) (type) For fish species, detail on swim bladders is noted ²	COs
			<i>This species does not have a swim bladder.</i>	accessible from estuary), population structure of juveniles (at least three age/size groups present), juvenile density in fine sediment (at least 1/m ²), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Lampetra fluviatilis</i> (River lamprey) [1099] (marine / freshwater) <i>This species does not have a swim bladder.</i>	To restore the favourable conservation condition of river lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem and major tributaries down to second order accessible from estuary), population structure of juveniles (at least three age/size groups of river/brook lamprey present), juvenile density in fine sediment (at least 2/m ²), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Alosa fallax fallax</i> (Twaite shad) [1103] (marine freshwater) <i>This species has a swim bladder.</i>	To restore the favourable conservation condition of twaite shad in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers accessible from estuary), population structure of juveniles (more than one age class present), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), water quality – oxygen levels (no lower than 5mg/l), spawning habitat quality (maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.
			<i>Salmo salar</i> (Salmon) [1106] (marine / freshwater) <i>This species has a swim bladder.</i>	To restore the favourable conservation condition of salmon in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (100% of river channels down to second order accessible from estuary), adult spawning fish (conservation Limit (CL) for each system consistently exceeded population), salmon fry abundance (maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling) out-migrating smolt abundance (no significant decline), number and distribution of reeds (no decline in number or distribution due to anthropogenic causes), water quality (at least Q4 at all sites sampled by EPA).
			<i>Phoca vitulina</i> (Harbour seal) [1365] (marine)	To maintain the favourable conservation condition of harbour seal in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: Access to suitable habitat (species range within the site

European site code	European site name	Distance to the site	Qualifying Feature(s) (type) For fish species, detail on swim bladders is noted ²	COs
				should not be restricted by artificial barriers to site use), Breeding, moulting and resting behaviour (the breeding sites, moult haul-out sites and resting haul-out sites should be maintained in a natural condition), disturbance (Human activities should occur at levels that do not adversely affect the harbour seal population at the site).
002953	Blackwater Bank SAC	29.2 km	<i>Phocoena phocoena</i> (Harbour porpoise) [1351] (marine)	To maintain the favourable conservation condition of harbour porpoise in Blackwater Bank SAC, which is defined by the following list of attributes and targets: access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), disturbance (human activities should occur at levels that do not adversely affect the harbour porpoise community at the site).
003000	Rockabill to Dalkey Island SAC	47.4 km	<i>Phocoena phocoena</i> (Harbour porpoise) [1351] (marine)	To maintain the favourable conservation condition of harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets: access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), disturbance (human activities should occur at levels that do not adversely affect the harbour porpoise community at the site).
002162	River Barrow and River Nore SAC	48.4 km	<i>Petromyzon marinus</i> (Sea lamprey) [1095] (marine / freshwater) <i>This species does not have a swim bladder</i>	To restore the favourable conservation condition of sea lamprey in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers accessible from estuary), population structure of juveniles (at least three age/size groups present), juvenile density in fine sediment (at least 1/m ²), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Lampetra fluviatilis</i> (River lamprey) [1099] (marine / freshwater) <i>This species does not have a swim bladder.</i>	To restore the favourable conservation condition of river lamprey in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem and major tributaries down to second order accessible from estuary), population structure of juveniles (at least three age/size groups of river/brook lamprey present), juvenile density in fine sediment (at least 2/m ² (brook/river lamprey)), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Alosa fallax fallax</i> (Twaite shad) [1103] (marine / freshwater) <i>This species has a swim bladder.</i>	To restore the favourable conservation condition of twaite shad in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers accessible from estuary), population structure of juveniles (more than one age class present), extent and distribution of spawning habitat

European site code	European site name	Distance to the site	Qualifying Feature(s) (type) For fish species, detail on swim bladders is noted ²	COs
				(no decline in extent and distribution of spawning beds), water quality – oxygen levels (no lower than 5mg/l), spawning habitat quality (maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.
000707	Saltee Islands SAC	72	<i>Halichoerus grypus</i> (Grey seal) [1364] (marine)	To maintain the favourable conservation condition of grey seal in Saltee Islands SAC, which is defined by the following list of attributes and targets: access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), breeding (breeding sites should be maintained in a natural condition), moulting behaviour (moult haul-out sites should be maintained in a natural condition), resting behaviour (resting haul-out sites should be maintained in a natural condition), population composition (the grey seal population occurring within this site should contain adult, juvenile and pup cohorts annually), disturbance (human activities should occur at levels that do not adversely affect the grey seal population at the site).
000204	Lambay Island SAC	74	<i>Halichoerus grypus</i> (Grey seal) [1364] (marine)	To maintain the favourable conservation condition of grey seal in Lambay Island SAC, which is defined by the following list of attributes and targets: access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), breeding (breeding sites should be maintained in a natural condition), moulting behaviour (moult haul-out sites should be maintained in a natural condition), resting behaviour (resting haul-out sites should be maintained in a natural condition), disturbance (human activities should occur at levels that do not adversely affect the grey seal population at the site).
			<i>Phoca vitulina</i> (Harbour seal) [1365] (marine)	To maintain the favourable conservation condition of harbour seal in Lambay Island SAC, which is defined by the following list of attributes and targets: access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), breeding (breeding sites should be maintained in a natural condition), moulting behaviour (moult haul-out sites should be maintained in a natural condition), resting behaviour (resting haul-out sites should be maintained in a natural condition), disturbance (human activities should occur at levels that do not adversely affect the grey seal population at the site).

Table 3: SACs considered in this report, including qualifying features and associated Conservation Objectives (COs) (Onshore).

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
000729	Buckroney-Brittas Dunes and Fen SAC	4.3 km	Annual vegetation of drift lines [1210] (terrestrial)	To maintain the favourable conservation condition of Annual vegetation of drift lines in Buckroney-Brittas Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession. For the sub-site mapped: Pennycomequick - 0.48ha), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain the presence of species-poor communities with typical species: sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>), prickly saltwort (<i>Salsola kali</i>) and oraches (<i>Atriplex spp.</i>)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover).
			Perennial vegetation of stony banks [1220] (terrestrial)	To restore the favourable conservation condition of Perennial vegetation of stony banks in Buckroney-Brittas Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain the typical vegetated shingle flora including the range of sub-communities within the different zones), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover).
			Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] (terrestrial)	To maintain the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in Buckroney-Brittas Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), physical structure: creeks and pans (Maintain creek and pan

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				structure, subject to natural processes including erosion and succession), physical structure: flooding regime (Maintain natural tidal regime), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation structure: vegetation height (Maintain structural variation in the sward), vegetation structure: vegetation cover (Maintain more than 90% of the area outside of creeks vegetated), vegetation composition: typical species and sub-communities (Maintain range of sub-communities with typical species listed in McCorry and Ryle (2009)), vegetation composition: negative indicator species (There is no record of common cordgrass (<i>Spartina anglica</i>) in the SAC and its establishment should be prevented).
			Embryonic shifting dunes [2110] (terrestrial)	To restore the favourable conservation condition of Embryonic shifting dunes in Buckrone-y-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain the presence of species-poor communities with typical species: sand couch grass (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover).
			Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] (terrestrial)	To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) in Buckrone-y-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: plant health of dune grasses (More than 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)), vegetation composition: typical species and sub-communities (Maintain the presence of species-poor communities dominated by marram

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover).
			Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] (terrestrial)	To maintain the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes)* in Buckrone-y-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: bare ground (Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes), vegetation structure: sward height (Maintain structural variation within sward), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain range of sub-communities with typical species listed in Delaney <i>et al.</i> (2013)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover), vegetation composition: scrub/trees (No more than 5% cover or under control).
			Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] (terrestrial)	To restore the favourable conservation condition of Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)* in Buckrone-y-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: bare ground (Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes), vegetation structure: sward height (Maintain structural variation within sward), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain range of sub-communities with typical species listed in Delaney <i>et al.</i> (2013)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover), vegetation composition: scrub/trees (No more than 5% cover or under control).
			Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170] (terrestrial)	To maintain the favourable conservation condition of Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) in Buckrone-y-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				(Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: bare ground (Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes), vegetation structure: sward height (Maintain structural variation within sward), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain range of sub-communities with typical species listed in Delaney et al. (2013)), vegetation composition: cover and height of <i>Salix repens</i> (Maintain more than 10% cover of creeping willow (<i>Salix repens</i>); vegetation height should be in the average range of 5-20cm), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover), vegetation composition: scrub/trees (For trees and scrub other than creeping willow (<i>Salix repens</i>), there should be no more than 5% cover or their presence should be under control).
			Humid dune slacks [2190] (terrestrial)	To restore the favourable conservation condition of Humid dune slacks in Buckroney-Brittis Dunes and Fen SAC, which is defined by the following list of attributes and targets: habitat area (Area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (No decline or change in habitat distribution, subject to natural processes), physical structure: sediment supply (Maintain the natural circulation of sediment and organic matter, without any physical obstructions), physical structure: hydrological and flooding regime (Maintain natural hydrological regime), vegetation structure: bare ground (Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground), vegetation structure: vegetation height (Maintain structural variation within sward), vegetation structure: zonation (Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (Maintain range of sub-communities with typical species listed in Delaney et al. (2013)), vegetation composition: cover and height of <i>Salix repens</i> (Maintain less than 40% cover of creeping willow (<i>Salix repens</i>)), vegetation composition: negative indicator species (Negative indicator species (including non-native species) to represent less than 5% cover), vegetation composition: scrub/trees (No more than 5% cover or under control).

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
001742	Kilpatrick Sandhills SAC	6.3 km	Annual vegetation of drift lines [1210] (terrestrial)	To maintain the favourable conservation condition of Annual vegetation of drift lines in Kilpatrick Sandhills SAC, which is defined by the following list of attributes and targets: habitat area (hectares – area stable or increasing, subject to natural processes, including erosion and succession; for the sub-site mapped: Kilpatrick – 0.03 ha), habitat distribution (occurrence – no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (occurrence – maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (percentage cover at a representative number of monitoring stops – maintain the presence of species-poor communities with typical strandline species such as <i>Cakile maritima</i> , <i>Honckenya peploides</i> , <i>Salsola kali</i> and <i>Atriplex</i> spp.), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native species and species indicative of changed nutrient status, to represent less than 5% cover).
			Embryonic shifting dunes [2110] (terrestrial)	To restore the favourable conservation condition of Embryonic shifting dunes in Kilpatrick Sandhills SAC, which is defined by the following list of attributes and targets: habitat area (hectares – area stable or increasing, subject to natural processes, including erosion and succession; for the sub-site mapped: Kilpatrick – 0.25 ha), habitat distribution (occurrence – no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (occurrence – maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: plant health of foredune grasses (percentage cover – more than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy, i.e. green above-ground parts and flowering heads present), vegetation composition: typical species and sub-communities (percentage cover at representative monitoring stops – maintain species-poor communities with typical embryonic/strandline species such as <i>Elytrigia juncea</i> , <i>Ammophila arenaria</i> , <i>Euphorbia paralias</i> and <i>Honckenya peploides</i>), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native species such as <i>Hippophae rhamnoides</i> and species indicative of nutrient enrichment, to represent less than 5% cover).

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
			Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] (terrestrial)	To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) in Kilpatrick Sandhills SAC, which is defined by the following list of attributes and targets: habitat area (hectares – area stable or increasing, subject to natural processes, including erosion and succession; for the sub-site mapped: Kilpatrick – 0.36 ha), habitat distribution (occurrence – no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (occurrence – maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: plant health of dune grasses (percentage cover – more than 95% of marram (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy), vegetation composition: typical species and sub-communities (percentage cover at representative monitoring stops – maintain species-poor communities dominated by <i>Ammophila arenaria</i> and/or <i>Leymus arenarius</i> , with associated species such as <i>Euphorbia paralias</i> , <i>Calystegia soldanella</i> and <i>Eryngium maritimum</i>), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native species and nutrient-indicator species, to represent less than 5% cover; <i>Hippophae rhamnoides</i> should be absent or effectively controlled).
			Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] (terrestrial)	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in Kilpatrick Sandhills SAC, which is defined by the following list of attributes and targets: habitat area (hectares – area stable or increasing, subject to natural processes, including erosion and succession; for the sub-site mapped: Kilpatrick – 12.93 ha), habitat distribution (occurrence – no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (occurrence – maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation structure: bare ground (percentage cover – bare ground should not exceed 10% of the fixed dune habitat, subject to natural processes), vegetation structure: sward height (centimetres – maintain structural variation within the sward), vegetation composition: typical species and sub-communities (percentage cover at a representative number of monitoring stops – maintain the range of sub-communities with typical species such as <i>Festuca rubra</i> , <i>Galium verum</i> , <i>Lotus corniculatus</i> , <i>Ononis repens</i> ,

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				<i>Daucus carota</i> , <i>Thymus polytrichus</i> , <i>Anthyllis vulneraria</i> , plus other herbs and lichens noted in the SAC), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native and nutrient-indicator species, to represent less than 5% cover; negative species recorded include common ragwort (<i>Senecio jacobaea</i>) and creeping thistle (<i>Cirsium arvense</i>), and <i>Hippophae rhamnoides</i> should be absent or controlled), vegetation composition: scrub/trees (percentage cover – no more than 5% cover or under control).
			Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] (terrestrial)	To restore the favourable conservation condition of Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) in Kilpatrick Sandhills SAC, which is defined by the following list of attributes and targets: habitat area (hectares – area stable or increasing, subject to natural processes including erosion and succession; no area was mapped by the CMP but habitat is potentially present and total area within the SAC is unknown), habitat distribution (occurrence – no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (occurrence – maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation structure: bare ground (percentage cover – bare ground should not exceed 10% of the dune habitat, subject to natural processes), vegetation structure: sward height (centimetres – maintain structural variation within the sward), vegetation composition: typical species and sub-communities (percentage cover at a representative number of monitoring stops – maintain the range of sub-communities with typical species; presence may be signalled by European gorse (<i>Ulex europaeus</i>) in mosaic with fixed dunes), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native species, to represent less than 5% cover; <i>Hippophae rhamnoides</i> should be absent or effectively controlled), vegetation composition: scrub/trees (percentage cover – no more than 5% cover or under control).
000781	Slaney River Valley SAC	13.9 km	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] (intertidal)	None listed.
			Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] (intertidal)	None listed.
			Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i>	To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in the Slaney River Valley SAC, which is defined by the following list

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
			<i>vegetation</i> [3260] (freshwater / intertidal)	of attributes and targets: habitat distribution (no decline, subject to natural processes), habitat area (area stable at 12.6 km or increasing, subject to natural processes), hydrological regime: river flow (maintain appropriate hydrological regimes), hydrological regime: tidal influence (maintain natural tidal regime), substratum composition: particle size range (for the tidal sub-type, the substratum of the channel must be dominated by particles of sand to gravel, with silt at the river margins), water quality: nutrients (the concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition), vegetation composition: typical species (typical species of the relevant habitat sub-type reach favourable status), and floodplain connectivity: area (the area of active floodplain at and upstream of the habitat must be maintained).
			Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] (terrestrial)	To restore the favourable conservation condition of old sessile oakwoods with <i>Ilex</i> and <i>Blechnum</i> in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: habitat area (area stable or increasing, subject to natural processes), habitat distribution (no decline), woodland size (area stable or increasing),
			Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0] (terrestrial)	To restore the favourable conservation condition of alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) in the Slaney River SAC, which is defined by the following list of attributes and targets: habitat area (area stable or increasing, subject to natural processes), habitat distribution (no decline), woodland size (area stable or increasing), woodland structure: cover and height (diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer), woodland structure: community diversity and extent (maintain diversity and extent of community types), woodland structure: natural regeneration (seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy), hydrological regime: flooding depth/height of water table (appropriate hydrological regime necessary of maintenance of alluvial vegetation), woodland structure: dead wood (at least 30m ³ /ha of fallen timber greater than 10 cm diameter; 30 snags/ha; both categories should include stems greater than 40 cm diameter (greater than 20 cm diameter in the case of alder), woodland structure: veteran trees (no decline), woodland structure: indicators of local distinctiveness (no decline), vegetation composition: native tree cover (no decline), vegetation composition: typical species (a variety of native species present), vegetation composition: negative indicator species (negative indicator species, particularly non-native invasive species, absent or under control).

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
			<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] (freshwater)	The status of the freshwater pearl mussel (<i>Margaritifera margaritifera</i>) as a qualifying Annex II species for the Slaney River Valley SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species.
			<i>Petromyzon marinus</i> (Sea Lamprey) [1095] (marine / freshwater)	To restore the favourable conservation condition of Sea lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers accessible from estuary), population structure of juveniles (at least three age/size groups present), juvenile density in fine sediment (at least 1/m ²), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Lampetra planeri</i> (Brook Lamprey) [1099] (freshwater)	To restore the favourable condition of Brook lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (access to all water courses down to first order streams), population structure of juveniles (at least three age/size groups of brook/river lamprey present), juvenile density in fine sediment (mean catchment juvenile density of brook/river lamprey at least 2/m ³), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), availability of juvenile habitat (more than 50% of sample sites positive).
			<i>Lampetra fluviatilis</i> (River Lamprey) [1099] (marine / freshwater)	To restore the favourable conservation condition of River lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem and major tributaries down to second order accessible from estuary), population structure of juveniles (at least three age/size groups of river/brook lamprey present), juvenile density in fine sediment (at least 2/m ³), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), availability of juvenile habitat (more than 50% of sample sites positive)).
			<i>Alosa fallax fallax</i> (Twaite Shad) [1103] (marine / freshwater)	To restore the favourable conservation condition of Twaite shad in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (greater than 75% of main stem length of rivers accessible from estuary), population structure of juveniles (more than one age class present), extent and distribution of spawning habitat (no decline in extent and distribution of spawning beds), water quality – oxygen levels (no lower than 5mg/l), spawning habitat quality (maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.
			<i>Salmo salar</i> (Salmon) [1106] (marine / freshwater)	To restore the favourable conservation condition of Salmon in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				distribution (100% of river channels down to second order accessible from estuary), adult spawning fish (conservation Limit (CL) for each system consistently exceeded population), salmon fry abundance (maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling) out-migrating smolt abundance (no significant decline), number and distribution of reeds (no decline in number or distribution due to anthropogenic causes), water quality (at least Q4 at all sites sampled by EPA).
			<i>Lutra lutra</i> (Otter) [1355] (marine / freshwater / terrestrial)	To restore the favourable conservation condition of Otter in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: distribution (no significant decline), extent of terrestrial habitat (no significant decline), extent of marine habitat (no significant decline), extent of freshwater (river) habitat (no significant decline), extent of freshwater (lake/lagoon) habitat (no significant decline), couching sites and holts (no significant decline), fish biomass available (no significant decline) and barriers to connectivity (no significant increase).
			<i>Phoca vitulina</i> (Harbour Seal) [1365] (marine / coastal)	To maintain the favourable conservation condition of Harbour Seal in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: Access to suitable habitat (species range within the site should not be restricted by artificial barriers to site use), Breeding, moulting and resting behaviour (the breeding sites, moult haul-out sites and resting haul-out sites should be maintained in a natural condition), disturbance (Human activities should occur at levels that do not adversely affect the harbour seal population at the site).
001766	Magherabeg Dunes SAC	14.9 km	Annual vegetation of drift lines (terrestrial)	To maintain the favourable conservation condition of Annual vegetation of drift lines in the Magherbeg Dunes SAC, which is defined by the following list of attributes and targets: habitat area (area stable or increasing, subject to natural processes, including erosion and succession), habitat distribution (no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (maintain the presence of species-poor communities with typical species), vegetation composition: negative indicator species (negative indicator species (including non-native species) to represent less than 5% cover).
			Embryonic shifting dunes (terrestrial)	To maintain the favourable conservation condition of Embryonic shifting dunes in the Magherabeg Dunes SAC, which is defined by the following list of

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				attributes and targets: habitat area (area stable or increasing, subject to natural processes, including erosion and succession; for the sub-site mapped: Magherabeg – 1.71 ha), habitat distribution (no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: typical species and sub-communities (maintain the presence of species-poor communities with the typical sub-communities and species documented for this habitat, e.g. <i>Elytrigia juncea</i> , <i>Honkenya peploides</i> , <i>Ammophila arenaria</i> , <i>Cakile maritima</i>), vegetation composition: negative indicator species (negative indicator species, including non-native species and species indicative of changed nutrient status, to represent less than 5% cover).
			Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] (terrestrial)	To maintain the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) in the Magherabeg Dunes SAC, which is defined by the following list of attributes and targets: habitat area (area stable or increasing, subject to natural processes, including erosion and succession; for the two sub-sites mapped: Magheramore – 0.01 ha; Magherabeg – 1.80 ha; total c.1.81 ha), habitat distribution (no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation composition: plant health of dune grasses (percentage cover – more than 95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy, i.e. green above-ground parts and flowering heads present), vegetation composition: typical species and sub-communities (maintain the presence of species-poor communities dominated by <i>Ammophila arenaria</i> and/or <i>Leymus arenarius</i> and other typical shore species), vegetation composition: negative indicator species (negative indicator species, including non-native species such as sea buckthorn (<i>Hippophae rhamnoides</i>), and species indicative of nutrient change, to represent less than 5% cover).
			Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] (terrestrial)	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in the Magherabeg Dunes SAC, which is defined by the following list of attributes and targets: habitat area (area stable or increasing, subject to natural processes, including erosion and succession;

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				for the sub-site mapped: Magherabeg – 7.93 ha), habitat distribution (no decline or change in habitat distribution, subject to natural processes), physical structure: functionality and sediment supply (presence/absence of physical barriers – maintain the natural circulation of sediment and organic matter, without any physical obstructions), vegetation structure: zonation (maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession), vegetation structure: bare ground (percentage cover – bare ground should not exceed 10% of fixed dune habitat, subject to natural processes), vegetation structure: sward height (centimetres – maintain structural variation within the sward), vegetation composition: typical species and sub-communities (percentage cover at representative monitoring stops – maintain the range of sub-communities with typical species listed in Delaney et al., e.g. <i>Galium verum</i> , <i>Lotus corniculatus</i> , <i>Ononis repens</i> , <i>Daucus carota</i> , <i>Thymus polytrichus</i> , <i>Anthyllis vulneraria</i>), vegetation composition: negative indicator species (percentage cover – negative indicator species, including non-native and nutrient-indicator species, to represent less than 5% cover; locally recorded negatives include <i>Senecio jacobaea</i> , <i>Cirsium arvense</i> , <i>Urtica dioica</i> and <i>Lolium perenne</i> ; <i>Pteridium aquilinum</i> and <i>Rosa spinosissima</i> may be invasive), vegetation composition: scrub/trees (percentage cover – no more than 5% cover or under control).
			Petrifying springs with tufa formation (<i>Cratoneurion</i>) (terrestrial)	To restore the favourable conservation condition of Petrifying springs with tufa formation (<i>Cratoneurion</i>) in the Magherabeg Dunes SAC, which is defined by the following list of attributes and targets: habitat area (square metres – area stable or increasing, subject to natural processes; a total of c.275 m ² was recorded at three locations at Ardmore Point: c.25 m ² (PS091a), c.200 m ² (PS091b) and c.50 m ² (PS091c)), habitat distribution (occurrence – no decline, subject to natural processes; three point locations recorded at Ardmore Point), hydrological regime: height of water table; water flow (metres; m/s – maintain appropriate hydrological regimes; springs rely on permanent groundwater upwelling or seepage and water flow should not be altered anthropogenically), water quality – nitrate level (mg/l – no increase from baseline and less than 10 mg/l), water quality – phosphate level (µg/l – no increase from baseline and less than 15 µg/l), vegetation composition: positive indicator species (number per spring – at least three positive/high-quality indicator species as listed in Lyons & Kelly and no loss from baseline; species recorded at the SAC include <i>Didymodon tophaceus</i> , <i>Eucladium verticillatum</i> , <i>Festuca rubra</i> , <i>Schoenus nigricans</i> , <i>Anagallis tenella</i> , <i>Campylium stellatum</i> , <i>Chara vulgaris</i> , <i>Rivularia biasoletiana</i> and <i>Samolus valerandi</i>), vegetation composition: negative indicator species (cover on DAFOR scale – potentially negative indicator species should not be Dominant or Abundant and invasive species should be absent;

European site code	European site name	Distance to the site	Qualifying Feature(s) (type)	COs
				e.g. <i>Cratoneuron filicinum</i> and <i>Phragmites australis</i> were recorded but not Dominant/Abundant), vegetation structure: sward height (centimetres – field layer height between 10 cm and 50 cm except for bryophyte-dominated ground <10 cm), physical structure: trampling/dung (cover on DAFOR scale – cover should not be Dominant or Abundant).

Appendix B Onshore Preliminary Ecological Appraisal

ABWP Phase I Decommissioning

Onshore Preliminary Ecological Appraisal



Project name ABWP Phase I Decommissioning
Project no. 1620011606-002

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Statement of Authority

Author	Qualifications	Relevant Experience
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James Cunningham	BSc Environmental Science, MSc Environmental Consultancy.	Consultant ecologist since 2022.
Matt Neale	BSc (Hons) Environmental Science, MSC Coastal Conservation and Management, Chartered Ecologist (CEcol), Member of CIEEM	Senior Manager with 20+ years of experience.

Glossary

Term	Meaning
Arklow Bank Wind Park (ABWP) Phase I	Arklow Bank Wind Park (ABWP) Phase I comprises: - Offshore infrastructure seaward of High Water Mark (HWM), including: - Seven Wind Turbine Generators (WTG) with a combined capacity of 25.2 MW; - One meteorological (met) mast; and - One offshore export cable and inter-array cables connecting the WTGs; - Onshore infrastructure landward of HWM, including: - One onshore cable; and - One onshore substation.
ABWP Phase I Decommissioning EIA Scoping Presentation	Presentation scoping the likely environmental impacts of the Proposed Works.
baseline	A description of the relevant aspects of the current state of the environment (baseline scenario) (EIA Directive 2014/52/EU).
decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life (EPA, 2022).
designated sites	Unless otherwise specified, the term 'designated' is used to refer to international sites, European sites and national sites (that are legally designated, or are going through the process of designation (MDB, 2027)).
effect	The consequence of an impact on a receptor. For example, in the offshore environment, vessel activity (activity) results in increased levels of underwater noise (impact), with the potential to disturb marine mammals (effect).
Ecological Impact Assessment	Process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems (CIEEM, 2024).
Environmental Impact Assessment (EIA)	The process of examining the anticipated environmental effects of the Proposed Works – from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, and the subsequent decision as to whether the Proposed Works should be permitted to proceed, encompassing public response to that decision (EPA, 2022).
European site	Candidate Special Areas of Conservation (SACs) and proposed Special Protection Areas (SPAs) and adopted SACs and SPAs. SACs and SPAs are the Natura 2000 European Network designations in Ireland, defined in S.177R of the Planning and Development Act 2000, as amended (MDB, 2017).
Geographic Information System (GIS)	Array of technological tools presented on a spatial basis for the management, analysis and display of geographic data (MDB, 2017).

Term	Meaning
High Water Mark (HWM)	Level reached by the sea level at high tide.
impact	A change brought about by the Proposed Works.
intertidal	The area between the HWM and the Low Water Mark (LWM).
landfall	The point where the offshore export cable transitions from the offshore marine environment to the onshore terrestrial environment.
Low Water Mark (LWM)	Level reached by the sea at low tide.
mitigation measures	Measures to avoid, prevent or reduce impacts (EPA, 2022).
Natura 2000 network	An EU-wide network of important ecological sites. Natura 2000 sites in Ireland are European sites, including candidate SACs and proposed SPAs and adopted SACs and SPAs (MDB, 2017).
Proposed Works	The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
Qualifying Interests	Habitats and species of interest, under the Birds and Habitats Directives, which establish the reason(s) for designating a site as an SAC or SPA. The qualifying interests are set out in the site synopsis prepared for the site by the National Parks and Wildlife Service of the Department of Arts, Heritage, Regional Rural and Gaeltacht Affairs (MDB, 2017).
significance	The importance of the outcome of the impact (or the consequence of change) for the receiving environment (EPA, 2022).
Zone Of Influence (ZoI)	The potential geographic area that could be affected by the implementation of the Proposed Works. The ZoI should be regarded as having flexible boundaries which may change during the assessment. The boundaries should be determined having regard to the source-pathway-target risk assessment concept.

Acronyms

Acronym	Meaning
BoCCI	Birds of Conservation Concern Ireland
CDP	County Development Plan
CEA	Cumulative Effect Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
DEMP	Decommissioning Environmental Management Plan
ECow	Ecological Clerk of Works
EIA	Environmental Impact Assessment
ESB	Electricity Supply Board
EU BD	European Union Birds Directive
HWM	High Water Mark
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive Non Native Species
JNCC	Joint Nature Conservation Committee
LED	Light-emitting Diode
LWM	Low Water Mark
NBDC	National Biodiversity Data Centre
NHA	National Heritage Area
NPWS	National Parks and Wildlife Service

Acronym	Meaning
PEA	Preliminary Ecological Appraisal
PLC	Programmable Logic Controller
pNHA	Proposed National Heritage Area
SAC	Special Area of Conservation
SPA	Special Protection Area
UPS	Uninterruptible Power Supply

Units

Unit	Meaning
ha	Hectares
km	Kilometres
kV	Kilovolts
L	Litres
m	Meters
V	Volts

1 Introduction

1.1 Overview

- 1.1.1.2 Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park (ABWP) Phase I (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
- 1.1.2.2 This Onshore Preliminary Ecological Appraisal (PEA) for the Proposed Works aims to present a rapid assessment of the ecological features present, or potentially present, within the Onshore Site and its zone of influence (ZoI). The ZoI is the area over which ecological features may be affected by the biophysical changes caused by the Proposed Works Onshore and its associated activities.
- 1.1.3.2 The location of the 'Onshore Site' is shown in **Figure 1** below.
- 1.1.4.2 The structure and content of the report is based on current ecological report writing guidance (Chartered Institute of Ecology and Environmental Management (CIEEM), 2017a)).
- 1.1.5.2 This Onshore PEA is intended to support **Volume 3, Appendix 1.1: EIA Scoping Presentation** and assist in scoping potential significant impacts of Proposed Works Onshore on onshore ecology.
- 1.1.6.2 The content of this Onshore PEA is based on the findings of:
- A desk study; and
 - An extended *Guide to Habitats* habitat survey.
- 1.1.7.2 The specific objectives of this report are to:
- Identify designated sites located either within the Onshore Site boundary or the ZoI of the Proposed Works Onshore;
 - Assess the potential for the Onshore Site and the ZoI of the Proposed Works Onshore to support populations of protected species or species of nature conservation importance;
 - Record the main habitats and features of ecological interest on the Onshore Site;
 - Assess the overall ecological importance of the Onshore Site;
 - Provide recommendations for any additional further surveys (if required); and
 - Provide preliminary recommendations for the protection and enhancement of the Onshore Site's ecological features.
- 1.1.8.2 Since the preparation of this Appendix, minor modifications have been made to the Onshore Site boundary. Nevertheless, the findings of the Onshore Preliminary Ecological Appraisal remain applicable.
- 1.1.9.2 This Onshore PEA is supported by the following appendix:
- **Appendix A: Onshore Site Photographs.**



Figure 1: Onshore Site Location

1.2 Proposed Works Onshore

- 2.1.1.2 The Onshore Site includes a fenced compound where an onshore substation and ancillary equipment are located. There is also a 10 m cable corridor along the onshore cable route connecting the landfall point at High-Water Mark (HWM) with the onshore substation.
- 2.1.2.2 The Proposed Works Onshore include decommissioning the onshore substation and removing the onshore cable, including:
- In collaboration with Electricity Supply Board (ESB), termination and isolation of the 38 kilovolts (kV) and 400 volts (V) electricity supplies;
 - Removal of cooling oil (9000 litres (L)) from the transformer using an oil tanker, and transport to a licensed waste facility for depollution;
 - Transportation of transformer to a licensed waste facility for further depollution of residue oils and contaminants prior to metallic recycling / processing;
 - Removal of grey water from submerged oil interceptor tank, to be subsequently excavated and removed;
 - Excavation and removal of concrete bund;
 - Dismantling and removal of all equipment within the onshore substation building, including switchgear, servers, Programmable Logic Controller (PLC), Uninterruptible Power Supply (UPS), communication infrastructure, etc) for the onward recycling/transportation to a licensed waste facility for further processing and disposal. All cables are anticipated to be processed through a copper granulation plant for optimal environmental outcomes; and
 - Dismantling of onshore substation building structure, followed by site clearance and levelling, anticipated to include reinstatement using hardcore.
- 2.1.3.2 Onshore cable removal works would commence once the fence compound area is vacant and reinstated so that it can be used to temporarily store machinery, vehicles and excavated soil during onshore cable removal works, which would comprise:
- Set up of exclusion zones and signage along the onshore cable route;
 - Verify the location and depth of the cable;
 - Begin excavation at one end of the cable route, extracting the cable from the trench using mechanical aids, and placing removed cable sections in appropriate containers for transport and disposal; and
 - Backfill and compact excavated trench with excavated soil previously stored within the fence compound area.
- 2.1.4.2 Reasonable endeavours would be undertaken to fully remove the onshore cable; however, some sections may be left *in situ* if cable pulling becomes unfeasible.

1.3 Legislation and Policy Framework

- 3.1.1.2 There are several acts of legislation and planning policies which refer to the protection of wildlife within Ireland. Wildlife is protected at a national level through the Wildlife Act 1976 and Wildlife (Amendment) Acts 2000 and 2010 and their supporting documents.
- 3.1.2.2 The European Communities (Birds and Natural Habitats) Regulations 2011 transpose the Habitats Directive and the Birds Directive and set out the provisions for the protection and management of species and habitats of European importance. This provides for the creation of a network of protected wildlife areas across the European Union, known as 'Natura 2000'. The Natura 2000 network consists of Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (Council Directive 79/409/EEC). These sites are part of a pan-European range of measures aimed at conserving important or threatened habitats and species.
- 3.1.3.2 The European Union (Invasive Alien Species) Regulations 2024 address invasive alien species of national concern in Ireland and make it an offence to introduce, keep, allow to reproduce / grow or release these species into the wild.

1.3.2 Local Policy

Wicklow County Development Plan 2022 - 2028

- 3.2.1.2 The Wicklow County Development Plan (CDP) 2022-2028 (Wicklow County Council, 2025a) sets out the overall strategy for the proper planning and sustainable development of the County of Wicklow between 2022 and 2028. This includes the Arklow Municipal District, within which the Onshore Site is located.
- 3.2.2.2 Chapter 17 (as altered with Variation No. 3 (2025)) of the CDP outlines strategies and objectives relevant to the natural heritage and biodiversity in the County. Policies / objectives of relevance to the Proposed Works Onshore include:
- CPO 17.4: To contribute, as appropriate, towards the protection of designated ecological sites including SACs and SPAs; Wildlife Sites (including proposed Natural Heritage Areas); Salmonid Waters; Flora Protection Order sites; Wildfowl Sanctuaries (see S.I. 192 of 1979); Freshwater Pearl Mussel catchments; and Tree Preservation Orders (TPOs).
 - CPO 17.6: Ensure that development proposals, contribute as appropriate towards the protection and where possible enhancement of the ecological coherence of the European Site network and encourage the retention and management of landscape features that are of major importance for wild fauna and flora as per Article 10 of the EU Habitats directive.
 - CPO 17.7: To maintain the conservation value of all proposed and future Natural Heritage Areas (NHAs) and to protect other designated ecological sites in Wicklow.
 - CPO 17.12: To protect non-designated sites from inappropriate development, ensuring that ecological impact assessment is carried out for any proposed development likely to have a significant impact on locally important natural habitats, species or wildlife corridors. Ensure appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.
 - CPO 17.13: To facilitate, in co-operation with relevant stakeholders, the ongoing identification and recording of locally important biodiversity areas and species in County Wicklow, not otherwise protected by legislation and ensure that consideration is given to these in the development management process.
 - CPO 17.14: Ensure that development proposals support the protection and enhancement of biodiversity and ecological connectivity within the plan area in accordance with Article 10 of the Habitats Directive, including linear landscape features like watercourses (rivers, streams, canals, ponds, drainage channels, etc), woodlands, trees, hedgerows, road and railway margins, semi-natural grasslands, natural springs, wetlands, stonewalls, geological and geo-morphological systems, features which act as stepping stones, such as marshes and woodlands, other landscape features and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones that taken as a whole help to improve the coherence of the European network in Wicklow.
 - CPO 17.17: Work with statutory authorities to prevent and control the spread of invasive plant and animal species and require, where appropriate Invasive Species Management Plans to be prepared as part of the development management process where necessary.
 - CPO 17.26: Protect rivers, streams and other water courses by avoiding interference with river / stream beds, banks and channels and maintaining a core riparian buffer zone of generally 25m along watercourses (or other width, as determined by the Planning Authority having particular regard to 'Planning for Watercourses in the Urban Environment' by Inland Fisheries Ireland for urban locations) free from inappropriate development, with undeveloped riparian vegetation strips, wetlands and floodplains generally being retained in as natural a state as possible. Structures such as bridges should be clear span and designed and built in accordance with Inland Fisheries Ireland guidance.

2 Methodology

2.1 Desk Study

1.1.1.2 The purpose of the desk study was to collect existing baseline data about the Onshore Site and the ZoI such as the location of designated sites or other natural features of potential ecological value such as woodland and ponds. The following ZoI has been considered:

- Statutory designated sites up to 2 kilometres (km) from the Onshore Site, including SACs, SPAs, Ramsar sites, NHA, Nature Reserves, National Parks and Wildfowl Sanctuaries;
- Non-statutory designated sites, including potential National Heritage Areas (pNHA) up to 2 km from the Onshore Site;
- Records of protected species up to 2 km from the Onshore Site; and
- International and national statutory designated sites with bats or birds as a qualifying interest for designation, up to 10 km from the Onshore Site.

1.1.2.2 The National Biodiversity Data Centre (NBDC) Biodiversity Maps website (National Biodiversity Data Centre, 2026), the National Parks and Wildlife Service (NPWS) Designations Viewer (NPWS, 2024) and the Ramsar Sites Information Service (Ramsar, 2026) were used to identify designated sites and protected and notable species within the ZoI.

1.1.3.2 The Draft Arklow Local Planning Framework 2025 – 2031 (Wicklow County Council, 2025b) was used to identify key green corridors within the ZoI.

1.1.4.2 Supplementary information on the Onshore Site and its surroundings were obtained from aerial images available from Google™ Earth.

2.2 Extended Habitat Survey

2.1.1.2 An extended *Guide to Habitats* survey of the Onshore Site was undertaken by consultant ecologist James Cunningham on 23 February 2026. James holds a BSc in Environmental Science and an MSc in Environmental Consultancy and has worked professionally as a consultant ecologist since 2022.

2.1.2.2 The weather during the survey period was overcast, with drizzle and temperatures of 12°C.

2.1.3.2 The survey involved a walkover and preliminary assessment of key habitats, land use and ecological features.

2.1.4.2 The main habitats present were classified using the standard *Guide to Habitats* survey methodology and definitions described in A Guide to Habitats in Ireland (Fossit, J.A., 2000). In addition to general habitat classification, a list was compiled of observed plant species (using the nomenclature of Stace (2010), with common and Latin names referred to in the first instance after which only the common names are used). The abundance of each species was estimated for each habitat respectively using standard 'DAFOR' codes:

- D = Dominant;
- A = Abundant;
- F = Frequent;
- O = Occasional; and
- R = Rare.

2.1.5.2 The Onshore Site was assessed for its potential to support protected and notable species such as bats and birds and was inspected for signs of any invasive plant species subject to legal controls. This was to identify potential ecological constraints and to guide recommendations for further survey requirements for these species (if any). This 'extended' element of the survey allows identification of potential ecological constraints (and to guide recommendations for further survey requirements for these species) and opportunities for enhancement.

2.1.6.2 This included an internal and external inspection of the building found within the Onshore Site to assess its suitability to support roosting / nesting bats and birds.

2.1.7.2 In line with Bat Conservation Trust (BCT) Guidelines (Collins, 2023) the following building types and features are considered to be of particular suitability to support roosting bats:

- Buildings of pre-20th or early 20th century construction;
- Agricultural buildings of brick, stone, or timber construction;

- Large and complicated roof void(s) with unobstructed flying spaces;
- Large (>20 cm) roof timbers with mortise joints, cracks, and holes;
- Entrances into buildings for bats to fly through;
- Poorly maintained buildings such that they provide access points for bats into roofs, walls, bridges, but at the same time not being too cool and draughty;
- Roof warmed by the sun e.g. south facing;
- Weatherboarding and/or hanging tiles with gaps;
- Undisturbed building roofs and structures;
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year; and
- Buildings and built structures close to good foraging habitat e.g. mature trees, parkland, woodland, or wetland.

2.1.8.2 **Table 2.1** outlines the criteria for each of the bat roosting potential categories, in line with BCT Guidelines (Collins, 2023).

Table 2.1: Bat Roost Potential Categories in Built Structures

Roost Potential	Description
Confirmed	A structure that is confirmed to support a bat roost.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. These structures have the potential to support high conservation status roosts (e.g., maternity, or classic cool / stable hibernation site).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, and / or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e., unlikely to be suitable for maternity and not cool / stable hibernation site but could be used by individual hibernating bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices / suitable shelter at all ground / underground levels)

2.1.9.2 The extended *Guide to Habitats* survey also included an assessment of the suitability of foraging and commuting habitats for bats on the Onshore Site. **Table 2.2** outlines the suitability levels of foraging and commuting habitats, in line with BCT Guidelines (Collins, 2023).

Table 2.2: Bat Foraging and Commuting Habitat Suitability Categories

Suitability	Description
High	Continuous high-quality foraging or commuting habitat, well-connected to the wider landscape, located close to known roosts.
Moderate	Habitat connected to the wider landscape with suitability for a number of foraging or commuting bats.
Low	Habitats suitable for small numbers of foraging or commuting bats but isolated.
Negligible	No obvious flight lines or foraging habitats, however an element of uncertainty remains.
None	No features on site likely to be used by foraging or commuting bats.

2.3 Importance Criteria

- 3.1.1.2 Where a detailed enough assessment has been conducted to make it possible, the importance of ecological features, i.e. designated sites, habitats and species, identified within the ZoI has been assessed using a scale that classifies ecological features within a defined geographic context in accordance with CIEEM guidelines (CIEEM, 2018). The following frame of reference has been used for the Onshore Site, adapted to suit local circumstances:
- International and European Importance;
 - National Importance (Republic of Ireland);
 - Regional/Metropolitan Importance;
 - County/Borough Importance (Wicklow);
 - Local Importance;
 - Site-scale Importance (limited to the Onshore Site boundary or ZoI); and
 - Negligible Importance.
- 3.1.2.2 Various characteristics contribute to the importance of ecological features. These include recognised and published criteria (e.g. Reason and Wray, 2023) where the ecological features are assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential importance.
- 3.1.3.2 A wide range of sources can be used to assign importance to ecological features, including legislation and policy. In the case of designated sites, their importance reflects the geographic context of the designation. For example, sites designated as SACs are recognised as being of importance at an international scale. Ecological features not included in legislation and policy may also be assigned importance, due to, for example, local rarity or decline, or provision of a functional role for other ecological features. Professional judgement is used to assign such importance.

2.4 Limitations

- 4.1.1.2 The PEA of the Onshore Site has been undertaken based on CIEEM's 2017 Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017), with elements of CIEEM's Ecological Impact Assessment Guidelines (CIEEM, 2018), taking a proportional approach to the level of survey effort and reporting required due to the small size and industrial nature of the Onshore Site.
- 4.1.2.2 It should be noted that availability and quality of the data obtained during desk studies is reliant on third party responses. This varies from region to region and for different species groups. Furthermore, the comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.
- 4.1.3.2 The *Guide to Habitats* survey provides a snapshot of ecological conditions and does not record plants or animals that may be present at the Onshore Site at different times of the year. The survey was undertaken outside of the optimum April to September habitat survey period when plants are generally visible and identifiable, however, this was considered acceptable due to the lack of significant vegetated habitats present within the Onshore Site.
- 4.1.4.2 This PEA considers terrestrial receptors only and not intertidal or marine receptors which may be impacted by the Proposed Works.
- 4.1.5.2 This PEA does not constitute an Ecological Impact Assessment (EcIA) that is usually required to accompany the planning application. However, in this instance, no further surveys are considered necessary to inform the assessment of the Proposed Works. Due to the very low ecological importance of the Onshore Site and the ZoI, along with the minimal potential impacts predicted, a full EcIA is not recommended, and this PEA report is expected to contain sufficient information on which the application can be determined.
- 4.1.6.2 Ramboll is satisfied that this report represents a robust appraisal of the Onshore Site. If any action or development has not taken place on this land within twelve months of the date of this report, the findings of this survey should be reviewed by a suitably qualified ecologist and may need to be updated in line with CIEEM's 'Advice Note on the Lifespan of Ecological Reports and Surveys' (2019).

3 Baseline Conditions

3.1 Desk Study

3.1.1 Landscape Context

1.1.1.2 The Onshore Site is located on the northern pier within Arklow Marina, on the eastern coast of Ireland. It is bound to the:

- North by the Arklow Wastewater Treatment Plant, Marina Village and Arklow Shipping, beyond which is an athletic track and areas of green space including Arklow Duckpond and Kynoch Park;
- East by the northern pier, beyond which is the Irish Sea;
- South by the Avoca River and Arklow South Pier, beyond which is Arklow Golf Club and arable fields; and
- West by the Avoca River, beyond which is the centre of Arklow, including residential housing and commercial / industrial buildings.

3.1.2 Designated Sites

Statutory Sites

1.2.1.2 No SPAs, SACs, NHAs, National Parks, designated Nature Reserves, or Wildfowl Sanctuaries are found within 2 km of the Onshore Site, and no SACs designated for bats are present within 10 km.

1.2.2.2 One SAC of significance for birds is found within 10 km of the Onshore Site:

- Buckroney-Brittas Dunes and Fen SAC, located 5.1 km north, supports a breeding population of little tern *Sternula albifrons* (listed on Annex I of the Birds Directive), and other notable bird species including lapwing *Vanellus vanellus*, curlew *Numenius arquata* and teal *Anas crecca*.

Non-Statutory Sites

1.2.3.2 Three pNHAs are found within 2 km of the Onshore Site, as detailed in **Table 3.1**.

Table 3.1: Non-statutory Designated Sites within 2 km of the Onshore Site

Name	Type	Location and Distance from the Onshore Site	Area (ha)	Reason for Designation
Arklow Town Marsh	pNHA	0.8 km northwest	83.9	Low-lying wetland area, which supports a variety of plant and animal life, including birds.
Arklow Rock-Askintinny	pNHA	1.8 km south	61.1	Sand dune habitats.
Arklow Sand Dunes	pNHA	1.9 km north	19.3	Sand dune habitats, which support notable plant and animal communities.

Ancient Woodland

1.2.4.2 There is no ancient woodland present on, or directly adjacent, to the Onshore Site. The closest area of ancient woodland is found approximately 2.5 km west (Glenart Wood).

Wildlife Corridors

1.2.5.2 The Avoca River runs approximately 25 meters (m) south of the Onshore Site, connecting the Irish Sea and eastern coastline to Arklow Town Marsh pNHA and the Avoca River Valley pNHA further inland.

1.2.6.2 Other green corridors include Arklow Duckpond, approximately 675 m north, and Arklow North Beach, which extends to within approximately 400 m north of the Onshore Site.

3.2 Habitats

3.2.1 General Site Description

- 2.1.1.2 The Onshore Site habitat area covers approximately 0.075 hectares (ha) (onshore only) and comprises a small substation building and surrounding urban modified land, located on the Northern Arklow Pier. The following descriptions of habitats should be read in conjunction with **Figure 2** below.

3.2.2 Buildings and Artificial Surfaces (BL3) - Buildings

- 2.2.1.2 One building is found within the Onshore Site boundary, comprising a small substation of concrete construction, built in the early 2000s. This has a pitched, tiled roof, although the roof space appeared to be completely sealed, with no loft hatch or access available. Some lifting and missing tiles were observed on roof exterior (Target Note (TN)4 and TN5, **Figure 2**; Plates 5 and 6, **Appendix A**) and one of the eaves on the east-facing aspect was observed to have a cracked surface at the top (TN6, **Figure 2**; Plate 7, **Appendix A**), although this did not appear to offer access into the roof void. No other possible access points into the roof space were observed.
- 2.2.2.2 An external 10 Watt LED light was noted on the south-facing aspect (TN3, **Figure 2**), which was noted to be kept on permanently from dusk until dawn.
- 2.2.3.2 This habitat is considered to be of **Negligible** ecological importance.

3.2.3 Buildings and Artificial Surfaces (BL3) - Hardstanding

- 2.3.1.2 An area of hardstanding is found surrounding the substation building. An oil tank is found within the southwestern corner of this area (TN1, **Figure 2**), and a noisy 1:1 transformer is found to the north of the substation (TN2, **Figure 2**). Old bird nests were identified in two locations on / around this structure, which were considered likely to be feral pigeon *Columbia livia domestica* nests (Plates 10 and 11, **Appendix A**).
- 2.3.2.2 A small amount of ruderal vegetation is found growing in cracks in hardstanding and within gravel found beneath the transformer (see Plate 8, **Appendix A**), with species identified including scurvygrass *Cochlearia* sp. (R), mosses (R), sea mayweed *Tripleurospermum maritimum* (R), buck's-horn plantain *Plantago coronopus* (R), gorse *Ulex* sp. (R), and an unidentified creeping / stoloniferous grass species (O).
- 2.3.3.2 This habitat is considered to be of **Negligible** ecological importance.

3.2.4 Buildings and Artificial Surfaces (BL3) - Fence

- 2.4.1.2 A fence is found around the perimeter of the substation compound. This has metal plates on the northern side to limit seawater hitting the transformer during storms (see Plate 12, **Appendix A**) and is connected to an underground earthing network.
- 2.4.2.2 A second fence is found off-site to the west of the substation compound, which surrounds the perimeter of the Arklow Wastewater Treatment Plant.
- 2.4.3.2 This habitat is considered to be of **Negligible** ecological importance.

3.2.5 Spoil and Bare Ground (ED2)

- 2.5.1.2 Sparsely vegetated unsealed bare ground is found around the substation compound, with a patchy distribution of ruderal and ephemeral species (approximately 20-30% coverage) and lots of leaf litter present.
- 2.5.2.2 Species identified include kidney vetch *Anthyllis vulneraria* (R), sea mayweed (O), sedge *Carex* sp. (R), buck's-horn plantain (R), broad-leaved dock *Rumex obtusifolius* (R), Yorkshire fog *Holcus lanatus* (R), red fescue *Festuca rubra* (R), rose *Rosa* sp. (R), gorse *Ulex* sp. (R), scurvygrass *Cochlearia* sp. (R), ribwort plantain *Plantago lanceolata* (R), black medick *Medicago lupulina* (R), curled dock *Rumex crispus* (R), ragwort *Jacobaea vulgaris* (R) and spear thistle *Cirsium vulgare* (R).
- 2.5.3.2 This habitat is considered to be of up to **Site Level** ecological importance.

3.2.6 Sea walls, Piers and Jetties (CC1) – Riprap

2.6.1.2 A band of large rocks used for coastal protection (riprap) is found in the north of the Onshore Site in the intertidal zone. No significant vegetation or seaweed was observed in this area.

2.6.2.2 This habitat is considered to be of **Negligible** ecological importance.

3.2.7 Invasive Species

2.7.1.2 No invasive non native species (INNS) were identified during the extended habitat survey within the Onshore Site.



Figure 2: Habitat Plan

3.3 Species

3.3.1 Invertebrates

- 3.1.1.2 The sparse vegetation found within the Onshore Site provides only a limited nectar resource and habitat for invertebrates. The Onshore Site is therefore considered unlikely to support a significant population of invertebrates.
- 3.1.2.2 The Onshore Site is considered to be of **Negligible** importance for invertebrates.

3.3.2 Amphibians

- 3.2.1.2 No records of amphibians were identified on NBDC Biodiversity Maps within 2 km of the Onshore Site, with the closest record (common frog *Rana temporaria*) associated with Glenart Wood, approximately 2.7 km west.
- 3.2.2.2 No suitable habitat for amphibians is found within the Onshore Site, and no ponds are found within 500 m.
- 3.2.3.2 The Onshore Site is considered to be of **Negligible** importance for amphibians, and they are considered unlikely to be present.

3.3.3 Reptiles

- 3.3.1.2 No records of reptiles were identified within 2 km of the Onshore Site, and no suitable habitat is found within the Onshore Site boundary.
- 3.3.2.2 The Onshore Site is considered to be of **Negligible** importance for reptiles, and they are considered unlikely to be present.

3.3.4 Birds

- 3.4.1.2 NBDC Biodiversity Maps returned records of several notable bird species within 2 km of the Onshore Site, including three species on the Birds of Conservation Concern Ireland (BoCCI) Red List (Gilbert et al. 2021) and two species listed on Annex 1 of the EU Birds Directive (EU BD), as detailed in **Table 3.2**.

Table 3.2: Protected and Notable Bird Species Recorded within 2 km of the Onshore Site

Species	EU BD Annex 1	BoCCI4 Red / Amber List
Black-headed gull <i>Larus ridibundus</i>	-	Amber
Cormorant <i>Phalacrocorax carbo</i>	-	Amber
Greylag goose <i>Anser anser</i>	-	Amber
Herring gull <i>Larus argentatus</i>	-	Amber
House sparrow <i>Passer domesticus</i>	-	Amber
Kingfisher <i>Alcedo atthis</i>	Y	Amber
Lesser black-backed gull <i>Larus fuscus</i>	-	Amber
Meadow pipit <i>Anthus pratensi</i>	-	Red
Mute Swan <i>Cygnus olor</i>	-	Amber
Red kite <i>Milvus milvus</i>	Y	Red
Sand martin <i>Riparia riparia</i>	-	Amber
Starling <i>Sturnus vulgaris</i>	-	Amber
Swallow <i>Hirundo rustica</i>	-	Amber
Swift <i>Apus apus</i>	-	Red
Teal <i>Anas crecca</i>	-	Amber

Species	EU BD Annex 1	BoCCI4 Red / Amber List
Wheatear <i>Oenanthe oenanthe</i>	-	Amber

- 3.4.2.2 Evidence of nesting birds was found during the extended habitat walkover survey at two locations around the external transformer. This structure offers shelter and nesting opportunities for urban species tolerant of disturbance, such as pigeons and gulls. Gaps in riprap may also provide some opportunities for ground-nesting coastal birds. The Onshore Site does not contain suitable nesting habitat for the other notable species identified within 2 km, as shown in **Table 4.2**.
- 3.4.3.2 The Onshore Site does not contain any suitable foraging habitat for birds, owing to a lack of significant vegetation, and is relatively isolated from areas of greenspace within the surrounding landscape.
- 3.4.4.2 Nesting birds are considered to be of no more than **Site Level** importance at the Onshore Site.

3.3.5 Bats

- 3.5.1.2 NBDC Biodiversity Maps identified several records of bats within 2 km of the Onshore Site, with species including Daubenton's bat *Myotis daubentonii*, Leisler's bat *Nyctalus leisleri*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and whiskered bat *Myotis mystacinus*.
- 3.5.2.2 No evidence of bat roosts or activity (e.g. droppings, urine staining) was observed during the building inspection. Numerous undisturbed spider webs were noted within the onshore substation interior, indicating bat absence. Lifted and missing tiles on the substation roof provide some potential roosting opportunities for crevice-dwelling bats. No other internal or external access points into the roof space or building interior were identified.
- 3.5.3.2 In isolation, the substation building offers low potential for roosting bats. However, there is no suitable foraging and commuting habitat at the Onshore Site or in the immediate surrounding area, with a lack of identifiable vegetated corridors and suitable linear features and the combination of poor connectivity, lack of suitable foraging habitat, high level of exposure, permanent noise disturbance from the transformer (TN2, **Figure 2**) and extensive night-time lighting mean that it is considered highly unlikely that bats would utilise the substation building for roosting.
- 3.5.4.2 The Onshore Site is therefore considered to be of overall **Negligible** importance for roosting, foraging and commuting bats.

3.3.6 Badgers

- 3.6.1.2 No records of badger *Meles meles* were identified within 2 km of the Onshore Site.
- 3.6.2.2 The coastal nature of the Onshore Site, lack of suitable habitat for foraging or sett-building, and lack of connectivity to areas of greenspace within the surrounding landscape means badgers are considered unlikely to be present.
- 3.6.3.2 No evidence of badgers was observed on the Onshore Site during the extended habitat survey.
- 3.6.4.2 The Onshore Site is considered to be of **Negligible** importance for badger.

3.3.7 Otters

- 3.7.1.2 NBDC Biodiversity Maps identified one record of Eurasian otter *Lutra lutra* within 2 km of the Onshore Site, located around the Avoca River approximately 830 m north-west, dating to 2015.
- 3.7.2.2 The Avoca River is found in close proximity to the Onshore Site, although this section of the river is highly modified and the Onshore Site itself does not offer any suitability for laying-up, resting or breeding sites. Whilst the Avoca River provides connectivity to the Arklow Marsh pNHA further upstream, which appears to include suitable habitat for otter including vegetated riverbanks and woodland, the northern bank of the Avoca River immediately south of the Onshore Site has been modified to form a vertical steel-plated wall, providing no access for otters. The presence of otter within the Onshore Site is therefore considered highly unlikely, although opportunistic individuals may be found within the stretch of river found off-site to the south. No evidence of otters was observed on-site during the extended habitat survey.

3.7.3.2 The Onshore Site is considered to be of **Negligible** importance for otter.

3.3.8 Seals

3.8.1.2 NBDC Biodiversity Maps identified one record of a harbour seal *Phoca vitulina* within 2 km of the Onshore Site, which was associated with the Avoca River / Arklow Marina approximately 370 m west.

3.8.2.2 The riprap found in the north of the Onshore Site may provide some suitable terrestrial habitat for resting harbour seals, although this area is likely to be subject to disturbance from humans which may reduce the likelihood of seal presence. Riprap is common in the local area, extending along much of the surrounding coastline, which means this habitat is widely available and seals are unlikely to rely solely on the area present within the Onshore Site.

3.8.3.2 Seals are considered to be of up to **Site Level** importance at the Onshore Site due to the presence of riprap habitat only.

3.3.9 Hedgehog

3.9.1.2 NBDC Biodiversity Maps returned several records of hedgehog *Erinaceus europaeus* within 2 km of the Onshore Site, the closest of which is located approximately 400 m northwest around the Arklow Marina Village and dates to 2021.

3.9.2.2 No hedgerows, scrub or other significant vegetation is found within the Onshore Site, and there is a lack of connectivity to areas of greenspace within the surrounding landscape with suitable habitat for hedgehogs. This species is therefore considered unlikely to be present.

3.9.3.2 The Onshore Site is considered to be of **Negligible** importance for hedgehog.

3.3.10 Assessment of Important of Ecological Features

3.10.1.2 **Table 3.3** presents the ecological importance of habitats and species present on the Onshore Site, in accordance with CIEEM guidance. Species assessed as being unlikely to be present on the Onshore Site are not considered further in this assessment. Where further surveys are required to determine presence, the ecological importance of the feature cannot be determined in advance of the further surveys.

Table 3.3: Ecological Importance of Features Present on the Onshore Site

Feature	Ecological Importance	Rationale
Buildings	Negligible	Some features suitable for use by roosting bats, however negligible potential overall due to complete isolation from suitable foraging and commuting habitat.
Hardstanding	Negligible	Transformer within this area appears to be used occasionally by nesting birds. No other significant ecological value, with negligible vegetation presence.
Fence	Negligible	Does not contribute to the biodiversity value of the Onshore Site.
Spoil and bare ground	Up to Site Level	Sparse vegetation with relatively low species diversity. Unlikely to significantly contribute to the biodiversity value of the Onshore Site.
Sea walls, piers and jetties	Negligible	Coastal defence formed from stacked boulders (riprap) with negligible vegetation. Does not contribute to the biodiversity value of the Onshore Site.
Birds	Up to Site Level	Limited nesting potential for urban species tolerant of disturbance, with evidence of nesting birds found at two locations around the external transformer.
Seals	Up to Site Level	The riprap may provide some resting habitat for seals, although no evidence of presence was observed. Extensive alternative resting habitat is present in the surrounding area.

4 Ecological Constraints and Opportunities, and Recommendations

- 1.1.1.2 This section collates the information gained during the desk study and extended habitat survey, presenting the ecological constraints and opportunities and makes recommendations for mitigation and further surveys. It has been prepared in view of the Proposed Works Onshore.
- 1.1.2.2 The Proposed Works onshore are understood to result in the removal of the external transformer and demolition of the existing substation building, along with the excavation of the onshore cable within the surrounding built-up area.

4.2 Further Surveys

- 2.1.1.2 Based on the desk study and extended habitat survey, no further ecological surveys are considered necessary.

4.3 Designated Sites

- 3.1.1.2 The Avoca River, found approximately 25 m south of the Onshore Site, forms part of the Arklow wildlife corridor network and connects directly to the Arklow Town Marsh pNHA further upstream.
- 3.1.2.2 The Onshore Decommissioning Environmental Management Plan (DEMP) will include measures to prevent dust and contaminated run-off into the Avoca River during the Proposed Works Onshore, which could otherwise negatively affect both the Avoca River and the Arklow Town Marsh pNHA. A suitably qualified Ecological Clerk of Works (ECoW) will input into the Onshore DEMP to ensure appropriate mitigation measures are in place.

4.4 Habitats

- 4.1.1.2 No trees or other habitats of significant ecological value are found within the Onshore Site.
- 4.1.2.2 Measures outlined in the Onshore DEMP will be followed to prevent contaminated run-off into the Avoca River estuary and Irish Sea found in close proximity to the Onshore Site during the Proposed Works Onshore. A suitably qualified ECoW will input into the DEMP to ensure appropriate mitigation measures are in place.

4.5 Species

4.5.1 Birds

- 5.1.1.2 All wild birds in Ireland are protected whilst nesting, with deliberate significant disturbance during breeding and rearing, destruction of active nests and the taking or keeping of eggs constituting an offence under the EU Birds Directive.
- 5.1.2.2 Although the Onshore Site is unlikely to support a significant population of notable birds, evidence of nesting birds was found around the external transformer during the extended habitat survey, and the substation building may also be used by roosting / nesting urban birds. Were works to take place during the breeding season (March to August inclusive), there would be a risk that nests would be damaged or destroyed during the process.
- 5.1.3.2 Works at the Onshore Site should therefore take place between September and January. If this is not possible, a nesting bird check should be undertaken by an experienced ecologist prior to commencement of works. If evidence of nesting birds is identified, work should stop and a suitable no-work buffer zone around the nest area should be installed, until such time as chicks have fledged.

4.6 Enhancement

- 6.1.1.2 No recommendations for enhancement are considered appropriate due to the low ecological value of the Onshore Site.

5 Conclusions

- 1.1.1.2 This Onshore PEA has confirmed that the Onshore Site is of nature conservation importance at up to the Site Level only. By undertaking the Proposed Works Onshore in accordance with the recommendations in this Onshore PEA, the Proposed Works Onshore will be in conformity with relevant planning policy and legislation relating to onshore ecology.
- 1.1.2.2 It should be noted that based on the findings of this Onshore PEA, no further surveys are considered necessary to inform the assessment of the Proposed Works Onshore. Due to the very low ecological importance of the Onshore Site, along with the minimal potential impacts predicted, a full EcIA is not recommended, and this Onshore PEA report is expected to contain sufficient information on which the planning application can be determined.
- 1.1.3.2 **Table 5.1** summarises the mitigation recommendations for the Proposed Works Onshore.

Table 5.1: Summary of Recommendations

Receptors	Recommendations
Designated Sites	Pollution prevention measures outlined in a DEMP.
Habitats	Pollution prevention measures outlined in a DEMP.
Birds	Works should avoid the main bird breeding season (March to August inclusive). If this is not possible, a nesting bird check should be undertaken by an experienced ecologist prior to commencement of works.

6 References

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Appendix A Onshore Site Photographs



Plate 1: Substation Building



Plate 2: Built-up Area Surrounding Substation

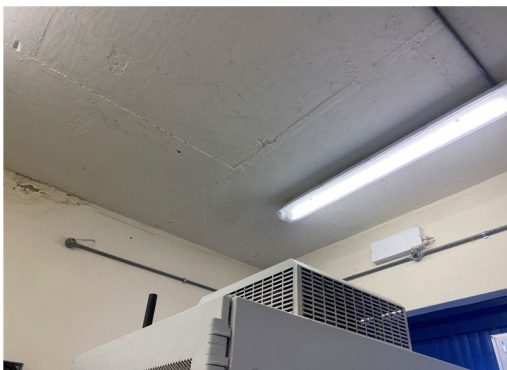


Plate 3: Substation Interior



Plate 4: Substation Interior



Plate 5: Lifted Tiles on Substation Roof



Plate 6: Missing Tiles on Substation Roof



Plate 7: Crack at Top of Substation Gable End



Plate 8: Vegetation Growing Within Gravel



Plate 9: External Transformer



Plate 10: Bird Droppings Within Transformer



Plate 11: Bird Droppings Within Transformer



Plate 12: Exterior Fence with Sea Defence