Prepared by
Roughan & O'Donovan
Dublin | Leeds | Cork
www.rod.ie

IRISH NATIONAL HERITAGE PARK

GROUND INVESTIGATION WORKS AND ENVIRONMENTAL SURVEYS









Natura Impact Statement

November 2026

Client
Wexford County Council
County Hall,
Carricklawn,
Wexford,
Y35 WY93

ROD
ROUGHAN & O'DONOVAN

Irish National Heritage Park - Ground Investigation Works and Environmental Surveys

Natura Impact Statement

TABLE OF CONTENTS

1. INTRODUCTION 4
1.1 Summary 4
1.2 Competent Experts 4
1.3 Legislative Context 5
1.4 Maritime Area Planning Legislation 8
1.5 Methodology 9
1.6 Ecological Assessment 10
1.6.1 Desk Study 10
1.6.2 Field Surveys 11
1.6.3 Assessment 13
2. DESCRIPTION OF THE PROPOSED WORKS 15
2.1 Background 15
2.2 Location 15
2.3 Environmental Surveys 15
2.3.1 Acoustic Doppler Current Profiler (ADCP) Hydro Acoustic Survey 15
2.3.2 Sediment Samples 16
2.4 Ground Investigations (The GI works) 18
2.4.1 Overview 18
2.4.2 Location 18
2.4.3 Outline of the GI works 18
2.4.4 Timing and Duration 19
2.4.5 Schedule of Investigations 21
2.5 Receiving Natural Environment 24
2.5.1 General Description and Context 24
2.5.2 Habitats 24
2.5.3 Marine Mammals 24
2.5.4 Otter 25
2.5.5 Birds 25
2.5.6 Aquatic Environment 27
2.6 Assessment 27
2.6.1 Potential Impacts on the Natural Environment 27
3. IDENTIFICATION OF ADVERSE EFFECTS 33
3.1 Establishing the Zone of Influence 33
3.2 Evaluation against Conservation Objectives 34
3.3 Summary of Adverse Effects 70

4. ASSESSMENT OF ADVERSE EFFECTS 73
4.1 Approach to Assessment 73
4.2 Slaney River Valley SAC 73
4.2.1 Harbour Seal 73
4.2.2 Otter 74
4.2.3 Estuaries 76
4.2.4 Mudflats and sandflats not covered by seawater at low tide 77
4.2.5 Atlantic salt meadows 78
4.2.6 Salmon 79
4.2.7 Lamprey Species 81
4.3 Wexford Harbour and Slobs SPA 82
4.3.1 Wintering Waterbird Species 82
4.3.2 Hen Harrier 83
4.3.3 Little Tern 84
4.3.4 Wetlands 86
4.4 Seas off Wexford SPA 86
4.4.1 Tern species 86
4.4.2 Gull species 88
4.4.3 Common Scoter 89
4.4.4 Breeding Birds 90
4.4.5 Cormorant 92
4.5 Carnsore Point SAC 93
4.5.1 Harbour Porpoise 93
4.6 Blackwater Bank SAC 94
4.6.1 Harbour Porpoise 94
4.7 The Raven SPA 95
4.7.1 Wintering bird species 95
4.7.2 Grey Plover 95
4.7.3 Sanderling 96
4.7.4 Greenland White-fronted Goose 97
4.8 Saltee Islands SAC 97
4.8.1 Grey Seal 97
4.9 Saltee Islands SPA 99
4.9.1 Diving birds 99
4.9.2 Lesser Black-backed Gull 100
4.10 Hook Head SAC 101
4.10.1 Common Bottlenose Dolphin 101
4.10.2 Harbour Porpoise 101
4.11 Summary 102
5. MITIGATION 103
5.1 Principles and Approach 103

5.2 Mitigation Measures 103
5.2.1 Water Quality 104
5.2.1.1 Environmental Surveys 104
5.2.2 Underwater Noise Disturbance 105
5.2.2.1 Marine Mammals 105
5.2.2.2 Atlantic Salmon, Twaite Shad, River Lamprey, Sea Lamprey. 106
5.2.2.3 Diving Seabirds 106
5.2.3 Above Water Noise and Visual Disturbance 106
5.3 Implementation 107
5.4 Residual Effects 107
6. IN-COMBINATION EFFECTS 108
6.1 Introduction 108
6.2 Methodology 108
6.3 Assessment of Effects 108
7. CONCLUSION 114
8. REFERENCES 115

APPENDIX A AA SCREENING DETERMINATION
APPENDIX B EUROPEAN SITE DESCRIPTIONS

1. INTRODUCTION

1.1 Summary

Roughan & O'Donovan (ROD) was engaged by Wexford County Council (WCC) to prepare a Natura Impact Statement (NIS) in support of a licence application to the Maritime Area Regulatory Authority (MARA), for maritime usage. The subject of the licence application is proposed ground investigation (GI) works and marine environmental surveys to inform the design of the proposed Irish National Heritage Park in Co. Wexford. The GI works and environmental surveys are collectively referred to as "the proposed works".

In February 2026, a Supporting Information for Screening for Appropriate Assessment (SISAA) Report was submitted as part of the maritime usage licence application. The SISAA Report is essentially an Appropriate Assessment (AA) Screening Report and serves the same function. The SISAA Report was prepared to assist the MARA in determining whether or not the GI works and the environmental surveys, either individually or in combination with other plans or projects, in view of best scientific knowledge, are likely to have a significant effect on areas designated as being of European importance for nature conservation ("European sites"), thereby enabling MARA, as the Competent Authority in this case, to fulfil its obligations under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive").

The report concluded that "on the basis of objective information, that the works, either individually or in combination with other plans or projects, in view of best scientific knowledge, are likely to give rise to impacts which would constitute significant effects in view of the Conservation Objectives of any European site".

MARA, the Competent Authority for AA determination regarding the granting of maritime usage licences, made the determination (Appendix A) on the 18th September 2026 that AA is required to be carried out in respect of the licence application and that a revised NIS is to be submitted.

This NIS has been prepared by ROD on behalf of WCC. It contains an examination, analysis and evaluation of adverse effects arising from the proposed works on nine European sites identified in the AA Screening Determination made by MARA. It also prescribes appropriate mitigation to ensure that the proposed works will not adversely affect the integrity of those sites. Finally, it provides complete, precise and definitive findings which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European sites concerned and sets out detailed reasons which explains the basis for such findings.

1.2 Competent Experts

This Natura Impact Statement was prepared by Patrick O'Shea and Rachel Heaphy. Patrick is an Associate in ROD with 14 years' experience in ecological assessment. He holds a degree in Botany from Trinity College Dublin and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. Patrick is a

Full member of the Chartered Institute of Ecological and Environmental Management (CIEEM).

Rachel is an Ecologist with more than 5 years' experience in ecological assessment including Appropriate Assessment. She holds a BSc in Zoology from University College Cork and an MRes from the University of Roehampton. She is a Qualifying member of the Chartered Institute of Ecological and Environmental Management.

1.3 Legislative Context

Council Directive 92/43/EEC of the 21st May 1992 on the conservation of natural habitats of wild fauna and flora ("the Habitats Directive") and Directive 2009/147/EC of the European Parliament and of the Council of the 30th November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are important for conservation and in need of protection. This protection is afforded in part through the designation of sites which support significant examples of habitats or populations of species ("European sites"). Sites designated for birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

> "*Any plan or project not directly connected with or necessary to the management of the 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 site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site[1] and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

In *Case C-323/17* [§34*], People Over Wind*, the Court of Justice of the European Union ('the CJEU') referred to the nature of the test to be applied in making a screening determination as follows:

> *"[...] it is settled case-law that Article 6(3) of the Habitats Directive makes the requirement for an appropriate assessment of the implications of a plan or project conditional on there being a probability or a risk that the plan or project in question will have a significant effect on the site concerned. In the light, in particular, of the precautionary principle, such a risk exists if it cannot be excluded on the basis of objective information that the plan or project will have a significant effect on the site concerned (judgment of 26 May 2011, Commission v Belgium, C538/09, EU:C:2011:349, paragraph 39 and the case-law cited). The assessment of that risk must be made in the light inter alia of the characteristics and specific*

[1] Including, where applicable, 'sites'.

environmental conditions of the site concerned by such a plan or project (see, to that effect, judgment of 21 July 2016, Orleans and Others, C387/15 and C388/15, EU:C:2016:583, paragraph 45 and the case-law cited).”

Further clarification on the use of mitigation measures was provided in *Eco Advocacy*[2], where the CJEU ruled that where constituent elements are incorporated into the design of a project as standard features required for all projects of that nature and not with the aim of reducing negative effects of a project on European sites, those features cannot be regarded as indicative of likely significant effects on European sites concerned and should not be interpreted as mitigation measures intended to avoid or reduce harmful effects of a plan or project on those European sites. The judgment stated that:

“*In the light of the foregoing considerations, the answer to the fourth question is that Article 6(3) of the Directive 92/43 must be interpreted as meaning that, in order to determine whether it is necessary to carry out an appropriate assessment of the* implications *of a plan or project for a site, account may be taken of the features of that plan or project which involve the removal of contaminants and which therefore may have the effect of reducing harmful effects of the plan or project on that site, where those features have been incorporated into that plan or project as standard features, inherent in such a plan or project, irrespective of any effect on the site*.”

Article 7 of the Habitats Directive provides that the provisions of, inter alia, Article 6(3) are to apply to SPAs under Directive 2009/147/EC (the “Birds Directive”). As stated, the requirements arising out of Article 6(3) of the Habitats Directive are transposed into Irish law by Part XAB of the Planning and Development Act and by the European Communities (Birds and Natural Habitats) Regulations 2011 as amended3 (S.I. No.477 of 2011) (the Habitats Regulations), including Part 5 thereof, and Part XAB of the Planning and Development Act 2000, as amended.

The determination of whether or not a plan or project requires AA is referred to as “Stage 1” or “AA Screening”. A “Stage 1” or “AA Screening” is completed to determine whether or not the proposed development, either individually or in combination with other plans or projects, in view of best scientific knowledge, is likely to have a significant effect on areas designated as being of European importance for nature conservation (“European sites”), thereby enabling the Applicant, to fulfil its obligations under Article 6(3) of the Habitats Directive. The first threshold is reached if the plan or project is not directly connected with or necessary to the management of one or more European sites. In its ruling in *Waddenzee*[4], the Court of Justice of the European Union (CJEU) interpreted the second threshold as being reached where “*it cannot be excluded, on the basis of objective information, that* [the plan or project] *will have a significant effects on European sites*”. Thus, in applying the Precautionary Principle, the CJEU interpreted the word “likely” to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered “likely”. A likely

[2] Eco Advocacy v. An Bord Pleanála [2023] C-721/21

[3] Including inter alia S.I. 290 of 2013; SI 499 of 2013; SI 355 of 2015; the Planning, Heritage and Broadcasting (Amendment) Act 2021, Chapter 4; SI 293 of 2021.

[4] Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels *v.* Staatssecretaris van Landbouw, Naturbeheer en Visserij (Waddenzee) [2004] C-127/02 ECR I-7405.

effect is considered to be "significant" only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned[5].

Prior to approval of a plan or project which is the subject of AA (also referred to as "Stage 2"), it is necessary to "*ascertain*" that the plan or project will not "*adversely affect the integrity of the site*". In its guidance document (EC, 2018), the European Commission stated that "*the integrity of a site involves its constitutive characteristics and ecological functions*" and that "*the decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives*". Regarding the word "ascertain", the CJEU, also in *Waddenzee*, interpreted this as meaning "*where no reasonable scientific doubt remains as to the absence of such effects*". Therefore, the legal test at Stage 2 is satisfied (and the plan or project may be authorised) when it can be demonstrated beyond reasonable scientific doubt that the plan or project will not interrupt or cause delays in the achievement of the Conservation Objectives of the site or sites concerned. AA is informed by a "Natura Impact Report" (NIR) in the case of plans or a "Natura Impact Statement" (NIS) in the case of projects.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA[6] (in the NIR or NIS):

> *"[The AA] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed development proposed on the protected site concerned."*

The High Court and Supreme Court[7] have also provided clarity on how competent authorities should undertake AA[8] and has stated that the following four matters require to be addressed:

- First, an appropriate assessment must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect (a) European site(s) in the light of its conservation objectives;
- Second, there must be complete, precise and definitive findings and conclusions regarding the previously identified potential effects on any relevant European site(s) this and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions requires analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field;

[5] Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

[6] *Sweetman v. An Bord Pleanála* [2013] Case C-258/11.

[7] See *Kelly (Eoin) v An Bord Pleanála* [2014] I.E.H.C. 400 where the High Court (Finlay Geoghegan J.) held that section 177V(1) of the Planning and Development Act 2000 (as amended) must be construed so as to give effect to Article 6(3) of the Habitats Directive, and hence, an appropriate assessment carried out under section 177V(1) of the 2000 Act must meet the requirements of Article 6(3) of the Habitats Directive as interpreted by jurisprudence of the CJEU case law; *Connelly v An Bord Pleanála* [2018] 2 I.L.R.M 453; [2018] I.E.S.C. 31.

[8] *Kelly v. An Bord Pleanála* [2014] IEHC 422.

- Third, on the basis of those findings and conclusions, the Competent Authority (here MARA) must be able to determine that no scientific doubt remains as to the absence of the identified potential effects;
- Fourth, where the aforesaid three requirements are satisfied, MARA may determine that the proposed works will not adversely affect the integrity of any relevant European site. Accordingly, an appropriate assessment may only include a determination that the proposed works will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made, MARA decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.

In accordance with Regulation 250 of the Planning and Development Regulations and Regulation 42 of the Habitats Regulations, AA must be undertaken by the competent authorities. In Ireland, the competent authority is the relevant public authority for each plan or project (as defined in Part 1 of the Habitats Regulations), in this case MARA. Consequently, the responsibility for carrying out AA lies solely with the competent authority. In that respect, the NIS is not in itself an Appropriate Assessment but provides the competent authority with the information in the form of a Natura Impact Statement and any supplementary information as required for MARA to carry out its AA.

1.4 Maritime Area Planning Legislation

In December 2021, the Government passed the Maritime Area Planning (MAP) Act, 2021 to regulate the maritime area. The MAP Act will achieve this through the National Marine Planning Framework, maritime area consents for the occupation of the maritime area for the purposes of maritime usages for undefined or long periods of time, and licences for marine usages for a relatively short periods of time. The Maritime Area Regulatory Authority (MARA) has been established to oversee the enforcement of this Act. As part of this role, MARA will review applications for consents and licences within the maritime area.

The proposed works are located in a maritime area and are required to inform the design of the Irish National Heritage Park. The proposed works fall under Schedule 7(3) of the MAP Act, 2021 relating to the 'Maritime Usages which may be undertaken in Maritime Area pursuant to Licence':

> "*3. Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000*".

In accordance with the Act, the proposed works are required to hold a valid licence prior to their commencement.

This NIS has been prepared to inform the licence application for the ground investigation works and environmental surveys in accordance with the MARA Applicant Technical Guidance Note (2023).

1.5 Methodology

In accordance with the requirements for AA, this NIS assesses the likely effects of the proposed works on the integrity of the European sites "screened in" at Stage 1. This assessment is undertaken in six steps, as follows:

1. Step 1 involves gathering all of the information and data that will be necessary for a full and proper assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g., rare or protected habitats and species or invasive species present or likely to be present, and the details of the European sites within the Zone of Influence.
2. Step 2 involves examination of the information gathered in the first step and detailed scientific analysis of the effects of the plan or project on the ecological structure and function of the receiving environment, focussing on European sites.
3. Step 3 evaluates the effects analysed in Step 2 against the Conservation Objectives of the relevant European site or sites, thereby determining whether or not they constitute adverse effects on site integrity.
4. Having established that the plan or project will adversely affect the integrity of one or more European sites, Step 4 involves the development of appropriate mitigation, including, where appropriate, monitoring and enforcement measures, to eliminate or minimise those effects such that they no longer constitute adverse effects on the integrity of the site(s) concerned, as well as consideration of the significance of any residual (post-mitigation) effects.
5. Step 5 involved the assessment of the significance of any residual effects arising from the proposed works in combination with other plans or projects.
6. Step 6 involves the final determination of whether or not the plan or project will adversely affect the integrity of one or more European sites. Notwithstanding the final recommendation made in the NIS, the responsibility for completing this step lies solely with the Competent Authority.

The following guidance documents informed the assessment methodology:

- Department of Arts, Heritage and the Gaeltacht (DAHG) (2014) *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters.* Department of Arts, Heritage and the Gaeltacht, Dublin.
- Department of Environment, Heritage, and Local Government (DEHLG) (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- Department of the Environment, Heritage and Local Government (DEHLG) (2007) *Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters.* Department of the Environment, Heritage and Local Government, Dublin.
- European Commission (EC) (2021) *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3)*

and (4) of the Habitats Directive 92/43/EEC. Environment Directorate-General of the European Commission.

- European Commission (EC) (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, Brussels.
- European Commission (EC) (2007) *Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the Concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence*. Opinion of the European Commission.
- Maritime Area Regulatory Authority (MARA) (2023) *Obtaining a Licence to Carry Out Specified Maritime Usages in the Maritime Area under the Maritime Area Planning Act 2021: Applicant Technical Guidance Note.* Maritime Area Regulatory Authority, Wexford.
- National Parks and Wildlife Service (NPWS) (2010) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPW 1/10 & PSSP 2/10. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Office of the Planning Regulator (OPR) (2021) *Practice Note PN01: Appropriate Assessment Screening for Development Management.* Office of the Planning Regulator.

1.6 Ecological Assessment

In order to fully inform this NIS, it was necessary to establish the baseline ecological conditions in the receiving environment, particularly with regard to European sites. This was achieved by undertaking desktop studies, carrying out field surveys and engaging in consultations with the relevant stakeholders, including the National Parks & Wildlife Service (NPWS).

1.6.1 Desk Study

During the desk study, the statutory consultee, the National Parks & Wildlife Service (NPWS), provided data on designations of sites, habitats and species of conservation interest. This included reports pursuant to Article 17 of the Habitats Directive[9] (NPWS, 2025a, b, c) and Article 12 of the Birds Directive (Eionet, 2018)[10], as well as the Site Synopses, and Conservation Objectives (including supporting documents) for the relevant European sites.

The desk study involved thorough reviews of existing information relating to ecology in the vicinity of the proposed works. A number of web-based geographic information systems (GISs) were used to obtain information relating to the natural environment surrounding the proposed works. These included the NPWS *Map Viewer* (NPWS, 2026a), which provided information on the locations of protected sites, the National Biodiversity Data Centre's *Biodiversity Maps* (NBDC, 2026), which provided

[9] Under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive.
[10] Every three years, Member States of the European Union are required by Article 12 of the Birds Directive to report on implementation of the Directive. The most recent reporting available is for the period 2013-2018.

recent and historic records of protected species in the area, and Ordnance Survey Ireland's *GeoHive*, which provided additional information on the wider environment. Only species that are relevant to this NIS are included in Section 2.5.

Other resources used during the desk study included the following:

- Atkinson et al., (2023) *Guidance on Assessment and Construction Management in* Margaritifera *catchments in Ireland*.
- Gilbert, G., Stanbury, A., Lewis, L. (2021). *Birds of Conservation Concern in Ireland 4: 2020-2026*. Irish Birds 43: 1-22.
- Environmental Protection Agency (EPA) *Unified GIS Application provided data in relation to the Water Framework Directive Risk/Status of waterbodies in the vicinity of the proposed development*.
- Irish Wetland Bird Survey Site (I-WeBS) database.

As with all desk studies, the data considered were only as good as the data supplied by the recorders and recording schemes. The recording schemes provide disclaimers in relation to the quality and quantity of the data they provide, and these were considered when examining outputs of the desk study.

1.6.2 Field Surveys

Ecological field surveys have been undertaken at the proposed Irish National Heritage Park by ROD Ecologists at various dates between October 2020 – July 2026 (Table 1.1). The surveys were carried out during the optimal survey periods, as per TII guidelines (TII, 2008). Those surveys which are not relevant to Appropriate Assessment, i.e. those which do not concern habitats and species protected under the Habitats Directive, have been excluded.

Table 1.1 Surveys undertaken for the proposed Irish National Heritage Project.

Survey	Survey Date	Informed Appropriate Assessment
Habitats & Invasive Species	19/04/2024; 22/05/2026; 15/06/2026; 14/07/2026.	Yes
Wintering Waterbirds	30/10/2020; 26/11/2020; 16/12/2020; 21/01/2021; 26/02/2021; 29/03/2021; 28/04/2021; 27/10/2023; 28/11/2023; 13/12/2023; 16/01/2024; 20/02/2024; 07/03/2024; 19/04/2024.	Yes
Wintering Raptors	28/10/2025; 20/11/2025; 04/12/2025; 04/02/2025; 03/03/2026; 24/03/2026.	Yes
Breeding Birds	24/04/2026; 22/05/2026; 15/06/2026; 14/07/2026.	Yes
Bats	04/12/2025; 22/05/2026; 15/06/2026; 13/07/2026.	No
Otter	19/04/2024; 04/12/2025.	Yes

Survey	Survey Date	Informed Appropriate Assessment
Badger and other non-volant terrestrial mammals	19/04/2024; 04/12/2025.	No

The surveys adhered to the following guidelines:

- Bibby, C.J., Burgess, N.D. & Hill, D.A. 1992. *Bird Census Techniques*. Academic Press, London.
- BTO (2023) *Wader Hub: Breeding Wader Survey Guidance*. British Trust for Ornithology, The Nunnery, Thetford, Norfolk, United Kingdom.
- BTO (2011) *Bird Atlas 2007 – 2011.* British Trust for Ornithology, The Nunnery, Thetford, Norfolk, United Kingdom.
- EC (2013) *Interpretation Manual of European Union Habitats - EUR28*. European Commission, Brussels.
- Fossitt, J. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.
- Gilbert, G., Gibbons, D.W., Evans, J., (1998) *Bird Monitoring Methods: A Manual of Techniques for UK Key Species*. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.
- NPWS (2009) *Threat Response Plan: Otter (2009-2011)*. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Smith et al. (2011). *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council.
- TII (2020a) The Management of Invasive Alien Plant Species on National Roads – Standard. GE-ENV-01104. Transport Infrastructure Ireland.
- TII (2020b). *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance*. *GE-ENV-01105.* Transport Infrastructure Ireland.
- TII (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes. PE-ENV-01112*. Transport Infrastructure Ireland.
- TII (2008) *Ecological Survey Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. PE-ENV-01113*. Transport Infrastructure Ireland.
- TII (2006) *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. CC-ENV-01104*. Transport Infrastructure Ireland.
- TII (2005) *Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes. CC-ENV-01101.* Transport Infrastructure Ireland.

Habitats & Invasive Species

Habitat and Invasive species surveys for the proposed Irish National Heritage Park were undertaken on the 19th April 2024, the 22nd May, 15th June and 14th July 2026. Habitats were classified in accordance with *A Guide to Habitats in Ireland* (Fossitt, 2000) and mapped following Smith et al. (2011). The study area for the habitats and invasive species surveys included the proposed Irish National Heritage Park land plus the estuarine habitats to the north, where accessible. The study area

was systematically and thoroughly walked, and all habitats were classified and sketched onto maps. Any Fossitt habitats with links to Annex I habitats were examined further to determine if they corresponded to Annex I habitat. The presence of Annex I habitats, or otherwise, was confirmed using the Interpretation Manual of European Union Habitats (EC, 2013).

Wintering Waterbirds

Monthly wintering bird surveys were conducted for the proposed Irish National Heritage Park from October 2020 – April 2021 and October 2023 – April 2024. The surveys were undertaken from six locations along the southern bank of the Slaney estuary and included the estuary upstream and downstream of Ferrycarrig Bridge.

Surveys for Hen Harrier winter roosts were undertaken from October 2025 to March 2026. The survey was undertaken from one location along the southern bank of the estuary to the north of the Irish National Heritage Park in suitable wintering habitat for Hen Harrier, including saltmarsh and reedbeds in the Slaney Estuary.

All wintering bird species were recorded using a 'look-see' approach (Bibby et al., 2012). Survey methodology followed Gilbert et al. (1998) and the Irish Wetland Bird Survey (I-WeBS). All species recorded were classified according to British Trust for Ornithology (BTO) species codes. For each observation, the date, time, site, species, number of birds, position, activity and any other notes of interest were recorded.

Breeding Birds

Breeding waterbird surveys were undertaken in accordance with *BTO's Breeding Wader Survey Guidance* (BTO, 2023). Survey effort for breeding waders was focussed on areas of suitable breeding habitat in the trees adjacent to the Slaney estuary.

All species recorded were classified according to British Trust for Ornithology (BTO) species codes. Evidence of breeding was also collected, noting 'possible', 'probable' and 'confirmed' breeding, in line with *Bird Atlas 2007-2011* (BTO, 2011).

Otter

An Otter survey for the proposed Irish National Heritage Park was conducted on the 19th April 2024 and 4th December 2025 adhering to best practice guidelines (TII, 2006 & 2008). The study area for otters included the proposed Irish National Heritage Park, accessible areas along the southern bank of the River Slaney and the woodlands and scrub habitat on the northern side of the R730. The survey involved a search for signs of otter activity (prints, spraints, trails, holts, couches, slides, feeding remains etc.).

1.6.3 Assessment

The ecological baseline which was established by the desk study described above was used to inform the assessment of the potential ecological effects likely to arise from the environmental surveys and the proposed works, particularly with regard to

European sites. Any assumptions that were made in view of gaps in the ecological data were made in strict accordance with the Precautionary Principle.

2. DESCRIPTION OF THE PROPOSED WORKS

2.1 Background

Wexford County Council, in conjunction with Fáilte Ireland, is committed to developing Wexford as a tourism destination. The design of the proposed Irish National Heritage Park at Ferrycarrig, Co. Wexford aims to create, develop and incorporate a new experience '*Vikingar – Beyond Legend'* into its overall visitor experience.

The proposed works are required to inform the design of the proposed Irish National Heritage Park project, whereby three no. jetties and a man-made beach area are proposed to be installed on the southern bank of the Lower Slaney Estuary, to the north of the existing Irish National Heritage Park.

2.2 Location

The Irish National Heritage Park is located in Ferrycarrig, on the R730, northwest of Wexford town. The environmental surveys and the GI works will be undertaken within the Lower Slaney Estuary.

No alternatives have been considered for the environmental surveys and the GI works. The locations have been selected based on a preliminary review of the site location, although the exact locations may vary slightly based on the conditions of the riverbed during the time of installation.

2.3 Environmental Surveys

2.3.1 Acoustic Doppler Current Profiler (ADCP) Hydro Acoustic Survey

It is proposed to install two Acoustic Doppler Current Profiler (ADCP) Flow Meters into the Lower Slaney River Channel north of the existing Irish National Heritage Park, to measure tidal flow, speed and direction within the channel.

An ADCP is a hydroacoustic current meter similar to a sonar, used to measure water current velocities over a depth range using the Doppler effect of sound waves scattered back from particles within the water column.

The ADCPs will either be:

a) deployed in frames or bottom mounts on the riverbed, or

b) attached to a floating buoy if site conditions are not suitable for bottom mounts at installation.

Bottom mounted ADCPs will have a footprint of approx. 1.5m^2 each.

An unmanned surface vessel may also be deployed over a period of 24 hours. This process may be repeated in different parts of the tidal cycle to supplement the data collection, pending any issues with the data or if the results come back as incomplete.

The ADCPs will be deployed for a full tidal cycle (approx. 29 days) to measure water flow within the river. A vessel with a winch will be required to deploy the ADCPs. The

frames / bottom mounts will be selected or developed to suit the riverbed environment upon inspection, prior to the surveys being undertaken. The frames / bottom mounts will sit on the riverbed and may be held there by lead weights or other heavy weights which will be attached to the frames to keep them in place.

Each of the ADCPs may be marked with a buoy and precautions will be made to avoid damage or loss of equipment. As they will be located in shallow water, the noise emitted will likely be within the range of 600kHz – 1 MHz. The results will be saved to internal memory or output online to an external display software.

The ADCPs will be installed at the approximate locations of the blue triangles in Figure **2.1** below. The locations for the ADCPs are situated in the River Slaney, upstream of the N11 Bridge and Ferrycarrig to monitor water flow in the area. The locations of the ADCPs may move slightly on the advice from the supplier at the time of installation, depending on the conditions of the riverbed.

2.3.2 Sediment Samples

Sediments samples will be obtained at five locations within the River Slaney, as presented in Figure 2.1. These samples will be obtained using a Van Veen grab (or similar method) from a small vessel. Two surface samples of approximately 5 litres (about 15 cm penetration) in suitable sediment will be extracted at each of the five locations (total volume of 50L) and removed to a laboratory for testing. One sample from each location will undergo gradient analysis to determine the particle sizes present. The second sample will be tested to determine benthic sediment quality.

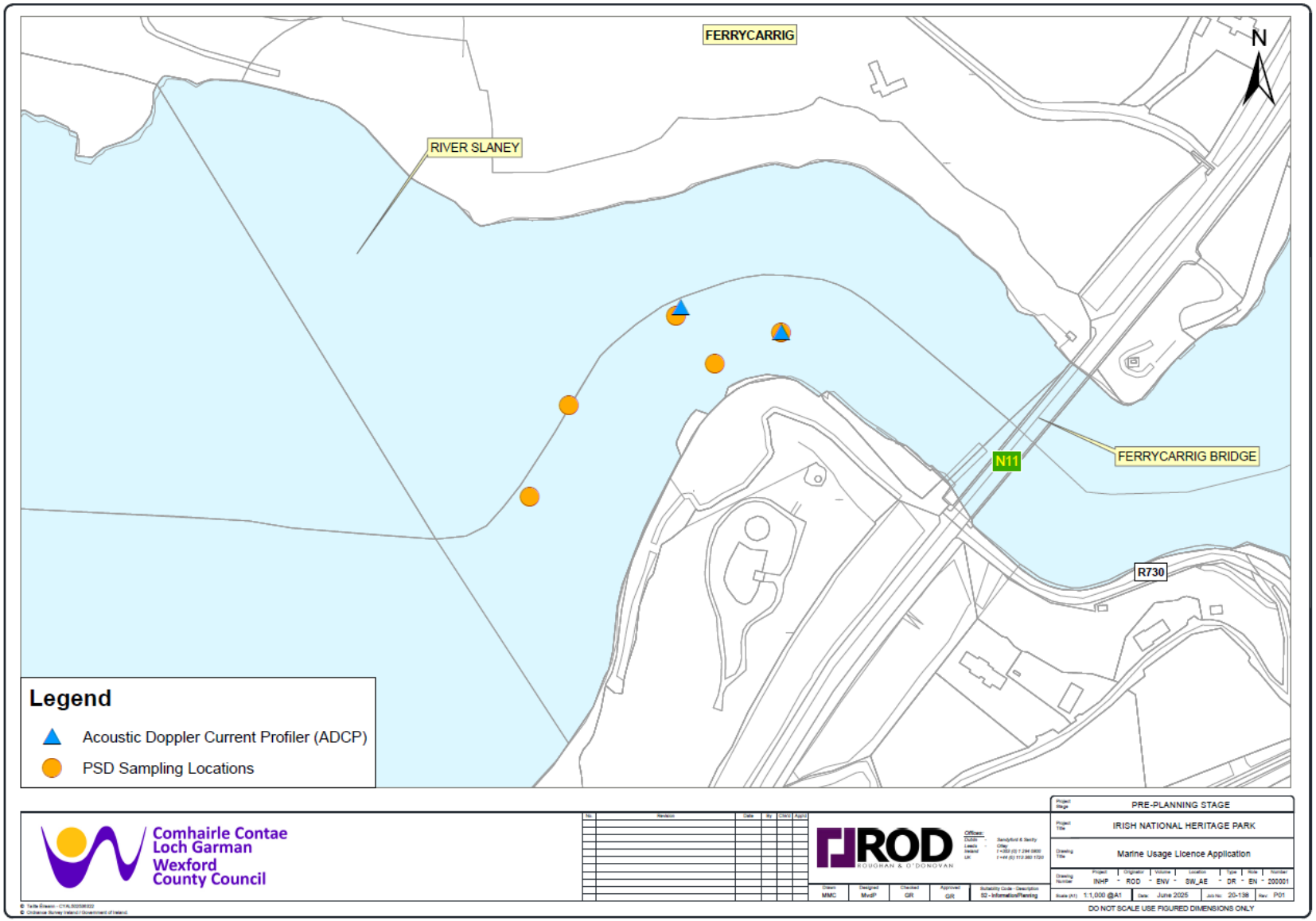


Figure 2.1 Proposed location of ADCPs and PSD samples in the Slaney Estuary.

2.4 Ground Investigations (The GI works)

2.4.1 Overview

The GI works will include five combined Cable Percussion (CP) and Rotary Core (RC) Boreholes (BH), one combined Cable Percussion and Rotary Core Borehole on land, grab sampling at five locations and geophysical surveys comprising Multi-Beam Echo Sounder, Side Scan Sonar and Sub-Bottom Profiling, as presented below in Table 2.1, Table 2.2 and Table 2.3. A piezometer will be installed as part of the land-based CP & RC to monitor groundwater levels.

2.4.2 Location

The proposed GI works will be undertaken in the terrestrial environment adjacent to the tidal reaches of the River Slaney and in close proximity to the river wall along the edge of the old R730. The location of the proposed GI works is presented in Figure 2.2.

2.4.3 Outline of the GI works

General Layout

The scope of the GI works envisaged under this ground investigation is as follows:

a) Geophysical surveys comprising High Multi-Beam Echo Sounder survey, Side Scan Survey and Sub-Bottom Profiling techniques;

b) Shell and auger or cable percussion boreholes, sampling and *in situ* testing;

c) Vertical open hole rotary drilling, sampling and *in situ* testing;

d) Rock coring, proving rock to a specified depth and *in situ* testing;

e) Monitoring of groundwater levels in standpipes and piezometers;

f) Detailed borehole and coring;

g) Sampling to IS EN 22475-1 requirements, predominantly providing Category A samples for laboratory testing of strength and stiffness;

h) Logs as described in IS EN14688-1; IS EN1489-1; and BS5930 and the specification;

i) The ground investigation should be carried out in accordance with British Standard 10175:2001+A2:2017, Investigation of Potentially Contaminated Sites: Code of Practice and the EPA Landfill Manual: Investigations for landfill.

j) Specific sediment grab samples to be carried out for the purpose of grading analysis, contamination assessment, waste classification and offshore marine disposal of excavated spoil plus laboratory testing of soil and groundwater samples for engineering properties, behaviour and suitability for reuse as engineering fill;

k) Laboratory testing of soil and rock samples for engineering properties, behaviour and suitability;

l) Laboratory testing of soil and groundwater samples for environmental contamination, waste classification and offshore marine disposal of excavated spoil;

m) Preparation of detailed Main Factual Report as per S1.21.8 and cl 16.8 of the Specification, together with the production of Digital Data to AGS Format as per S1.21.10 and cl. 16.5;

n) Preparation of an interpretive Ground Investigation Report in accordance with IS EN1997-2, Section 6 as per S1.21.9;

o) Preparation of a Contamination Assessment Report in accordance with the EPA document '*Environmental Risk Assessment for Unregulated Waste Disposal Sites (2007)*' as per Cl 1.21.9.

p) Preparation of a Waste Classification Assessment and reporting of acceptability of materials for disposal as inert, non-hazardous or hazardous wastes to landfill facilities in accordance with the Commission Decision of 18 December 2014 and EU Commission Regulation No 1357/2014;

q) Assessment of river bottom sediment samples for potential offshore marine disposal in compliance with Marine Institute (2006) "*Guidelines for Assessment of Dredge Material for Disposal in Irish Waters*".

r) Liaison with the Wexford Harbourmaster and Waterways Ireland in respect of access, safety measures and employee training required for exploratory works within or in the vicinity of navigable waterways; and

s) Liaison and compliance with Health & Safety requirements of PSCS and general contractor.

The schedule of investigations is presented in Table 2.1, Table 2.2 and Table 2.3 below.

2.4.4 Timing and Duration

The programming of the GI works has not yet been determined although they are anticipated to be completed within three months of their commencement.

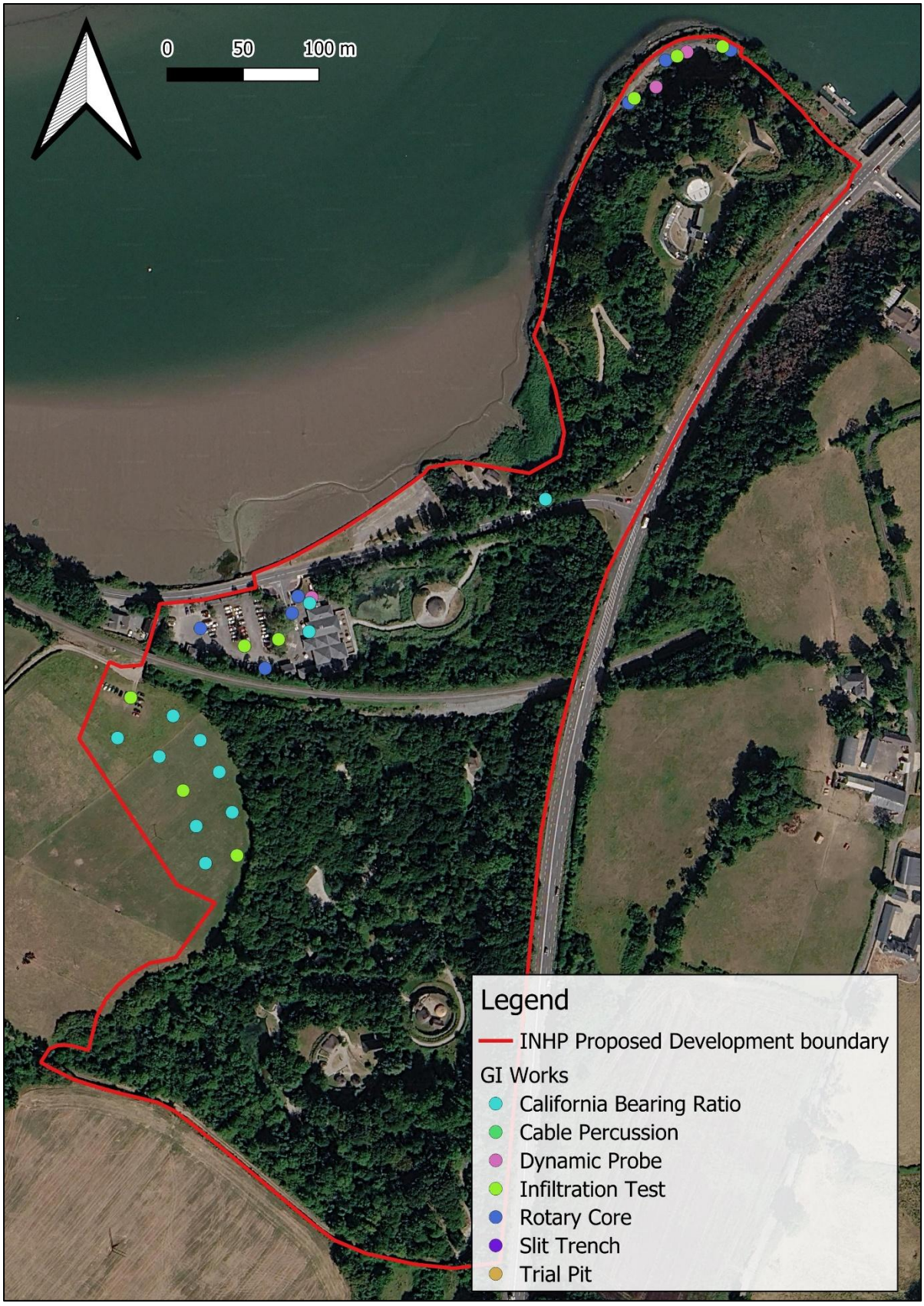


Figure 2.2 Proposed GI Works locations

2.4.5 Schedule of Investigations

Table 2.1 Borehole Schedule

Cable Percussion Borehole & Rotary Core Locations								
Hole ID.	Type	Scheduled Depth (m BGL)				Remarks	Coordinates (ITM Grid)	
		CP	RO	PG	RC		Easting	Northing
Marine BHs								
BH/RC101	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples.	TBC	TBC
BH/RC102	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples.	TBC	TBC
BH/RC103	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples.	TBC	TBC
BH/RC104	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples.	TBC	TBC
BH/RC105	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples.	TBC	TBC
Land BHs								
BH/RC106	CP & RC	15	-	-	20 to 30 (5m into rock)	RC may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Piezometer to be installed. Contamination Samples.	TBC	TBC
Notes	Each borehole may take approximately 3 no. days to complete. In-river borehole drilling will be undertaken from a low draft/flat-bottomed jack up barge.							

Table 2.2 Grab Sample Schedule for Contamination Assessment

Contamination Assessment Grab Sample Locations					
Hole ID.	Type	Scheduled Depth (m BGL)	Remarks	Coordinates (ITM Grid)	
				Easting	Northing
GS101	GS	0.5	Sediment samples to be taken from the riverbed soils at shallow depths and locations as per specification	TBC	TBC
GS102	GS	0.5	Sediment samples to be taken from the riverbed soils at shallow depths and locations as per specification	TBC	TBC
GS103	GS	0.5	Sediment samples to be taken from the riverbed soils at shallow depths and locations as per specification	TBC	TBC
GS104	GS	0.5	Sediment samples to be taken from the riverbed soils at shallow depths and locations as per specification	TBC	TBC
GS105	GS	0.5	Sediment samples to be taken from the riverbed soils at shallow depths and locations as per specification	TBC	TBC

Table 2.3 Geophysical Surveys

Geophysical Survey Locations			
Method	**Remarks**	**Coordinates (ITM Grid)**	
		Easting	**Northing**
Multi-Beam Echo Sounder (MBES)	*To provide continuous water depth profile and bathymetric chart*	-	-
Side Scan Sonar (SSS)	*To map riverbed conditions and sediments and detect potential obstructions, debris, existing infrastructure, etc.*	-	-
Sub-Bottom Profiling (SBP)	*Investigate shallow geology and sub-bottom stratigraphy*	-	-

Notes

1. CP = Cable Percussion, GS = Grab Sediment Sample; MBES = Multi-Beam Echo Sounder; RO = Rotary Open Hole, RC = Rotary Core, PG = Polymer Gel Geobor-S Rotary Coring, SBP = Sub-Bottom Profiling; SSS = Side Scan Sonar.
2. Coordinates to Irish Transverse Mercator Grid (ITM) and reduced levels to Malin Head Datum required for all BH i.e. CP and RC.
3. Undisturbed sampling is required in cohesive soils.
4. A minimum total core recovery of 95% and a minimum rock quality designation of 40% is required when coring in rock. Where voids are encountered a standard penetration test shall be undertaken.
5. Standard penetration tests are to be carried out as per the Specification.

2.5 Receiving Natural Environment

2.5.1 General Description and Context

The environmental surveys will be undertaken within the Lower Slaney Estuary in Co. Wexford (Figure 2.1). The land use on the northern side of the estuary is primarily agricultural while the southern side of the estuary is primarily urban development.

The GI works will be undertaken within the terrestrial environment and the marine environment.

The Lower Slaney Estuary is situated within the Slaney River Valley SAC and Wexford Harbour and Slobs SPA.

2.5.2 Habitats

Estuaries (MW4) is the principal habitat type that exists within the footprint of the environmental surveys. Other aquatic habitats recorded in the vicinity of the environmental surveys include Mud shores (LS4), Lower salt marsh (CM1) and Reed and large sedge swamps (FS1).

Terrestrial habitats, where the GI works will be carried out, include Buildings and artificial surfaces (BL3), Recolonising bare ground (ED3), Improved agricultural grassland (GA1), Amenity grassland (improved) (GA2) and Scrub (WS1).

The wider terrestrial habitat comprises largely of agricultural grassland with scattered residential dwellings and woodland areas. The urban town centre of Wexford is located at least 3km southeast of the proposed works. Habitats are classified in accordance with '*A Guide to Habitats in Ireland'* (Fossitt, 2000).

2.5.3 Marine Mammals

Table 2.4 presents a desktop review for records of marine mammals in the vicinity of the proposed works (NBDC, 2026).

Table 2.4 Marine Mammals listed on Annex II of the Habitats Directive recorded within the Zone of Influence

Common Name	Scientific name
Bottle-nosed Dolphin	*Tursiops truncatus*
Grey Seal	*Halichoerus grypus*
Harbour Porpoise	*Phocoena phocoena*
Harbour Seal	*Phoca vitulina*

Both Grey and Harbour Seal are widespread and abundant in Irish waters. It is considered likely that these species could occur within close proximity to the proposed works. The risk of bottle-nosed dolphin and porpoise occurring in the vicinity of the proposed works is much lower, but it is possible that these species could occur in the vicinity of the proposed works.

2.5.4 Otter

Otter is listed under Annex II and Annex IV of the EU Habitats Directive and are also protected under the Irish Wildlife Acts. This species is distributed throughout Ireland. Otter territories are typically between 2 – 32km in length but can be up to 80km (Kruuk, 1995). There are records of Otter in the Slaney Estuary adjacent to the proposed works according to data supplied by the NPWS (2026) and NBDC (2026).

A live Otter was recorded during the wintering bird surveys on the 7th March 2024 under Ferrycarrig Bridge and on the 4th December 2025 in the River Slaney, upstream of the proposed environmental survey locations. No other evidence of Otter (e.g. holts, spraints and couches) was recorded during any survey undertaken for the proposed works or the proposed Irish National Heritage Park project.

2.5.5 Birds

Wintering Waterbirds

Wintering bird surveys were conducted at six locations that were identified as having suitable habitat for wintering waterbirds along the Slaney Estuary between October 2020 – April 2021 and October 2023 – April 2024 (Figure 2.3). A total of 26 wintering bird species were recorded, 18 of which are Qualifying Interests of the Wexford Harbour and Slobs SPA, as summarised in Table 2.5 below. No wintering bird species, including Qualifying Interest species were recorded in Nationally or Internationally important numbers across the wintering bird survey seasons between 2020-2021, nor 2023-2024.

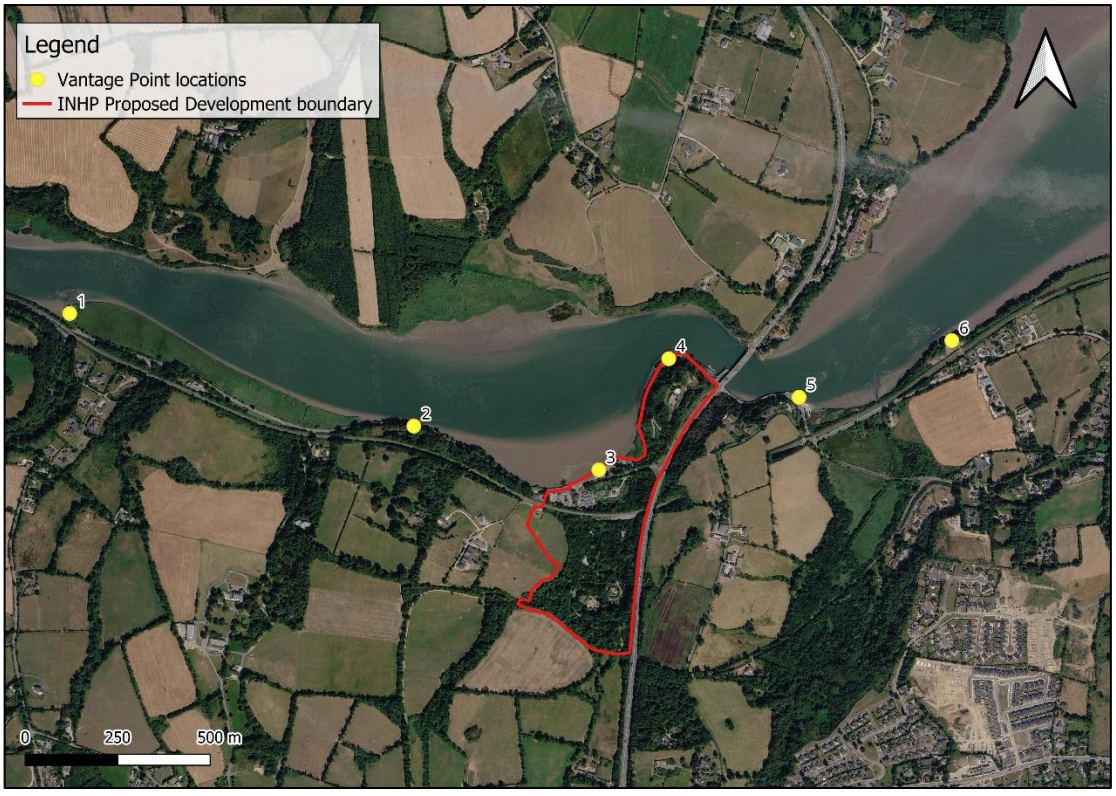


Figure 2.3 Wintering waterbird Vantage Point locations

Table 2.5 Peak counts of wintering bird species identified during vantage point surveys. Peak count is the month where the highest number of that species were recorded across all VPs.

Common Name	Peak Count 2020-2021	Peak Count 2023-2024	1% All Ireland Threshold
Black-headed Gull	152	115	n/a
Black-tailed Godwit	0	30	200
Canada Goose	0	8	n/a
Common Gull	4	1	n/a
Coot	1	1	190
Cormorant	2	2	110
Curlew	32	15	350
Great Black-backed Gull	0	2	n/a
Great Crested Grebe	2	2	30
Greenshank	11	11	20
Grey Heron	3	4	25
Herring Gull	21	7	n/a
Lapwing	0	35	850
Lesser Black-backed Gull	15	1	n/a
Little Egret	4	7	20
Little Grebe	0	9	20
Mallard	42	27	280
Mute Swan	2	4	90
Oystercatcher	2	3	610
Red-breasted Merganser	1	2	25
Redshank	120	80	240
Sanderling		1	85
Shelduck	2	3	100
Teal	99	75	360
Whimbrel	6	3	
Whooper Swan		5	150
Wigeon	107	0	560

Hen Harrier Roost Surveys

A survey to identify Hen Harrier roosts was conducted from one vantage point covering saltmarsh and reedbed habitats in the Slaney Estuary between October 2024 – March 2026. No Hen Harriers were recorded during any of the six evening roost surveys.

2.5.6 Aquatic Environment

Fish Species

Numerous studies of the fish populations of the River Slaney provide detailed information on the species present within the catchment. Several fish species protected under Annex II of the Habitats Directive have been recorded in the Slaney catchment including Atlantic Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax*) and lamprey (*Lampetra* sp.).

Water Quality

The Water Framework Directive (WFD) requires that each EU Member State protects and improves water quality in all waters so that good ecological status is achieved. Additionally, proposed actions (within discrete River Basin Management Plans) are also required, to secure national natural water resources for the future. The Environmental Protection Agency (EPA) is the competent authority responsible for monitoring, protecting and improving the water environment in the Republic of Ireland. In accordance with WFD guidelines, water quality 'Status' is assigned using a variety of available data on aquatic flora and fauna (including fish), the availability of nutrients, and aspects like salinity, temperature and pollution by chemical pollutants. Morphological features, such as quantity, water flow, water depths and structures of the riverbeds, are also taken into account. The current status for the waterbodies in proximity of the proposed works are presented in Table 2.6.

Table 2.6 EPA Water Quality Results

WFD Waterbody	Transitional Waterbody WFD Status 2019-2024	Transitional Waterbody WFD Status 2016-2021	Transitional Waterbody WFD Status 2016-2021	Waterbodies Risk
Lower Slaney Estuary Transitional Waterbody	Poor	Poor	Poor	At Risk

2.6 Assessment

The ecological baseline which was established by the desk studies and field surveys described above was used to inform the assessment of the potential ecological effects arising from the proposed works, particularly with regard to European sites. Any assumptions that were made in view of gaps in the ecological data were made in accordance with the Precautionary Principle.

2.6.1 Potential Impacts on the Natural Environment

Underwater noise

Underwater noise emissions will come from the environmental surveys and GI works (e.g., acoustics from the ADCPs and geophysical surveys). The ambient underwater noise levels in Wexford Harbour are not known but is expected to be dominated by environmental noise (e.g. tidal movement of water and sediment) and shipping traffic. Downstream of the proposed works in Wexford Harbour, noise due to recreational and fishing vessels transiting between Wexford town and the Irish Sea adds to the baseline

underwater noise levels. Mussel fishing vessels are particularly common in Wexford Harbour with a large area of the harbour under active Aquaculture licences.

Marine mammals, diving seabirds and aquatic species, including migratory fish, are vulnerable to anthropogenic noise inputs into the aquatic environment. Underwater noise has the potential to cause a range of impacts to marine life including to injury (hearing damage) and behavioural changes. Hearing damage injury is known as threshold shift can be either permanent (Permanent Threshold Shift, (PTS)) or temporary (Temporary Threshold Shift, (TTS)). Behavioural changes can include communication disruption, altered foraging behaviour or displacement from the area. Noise from anthropogenic sources have been measured to assess the levels which could cause injury to marine mammals. These are used as thresholds and are commonly used to assess the level of risk associated with noise producing activities in the marine environment. Table 2.7 presents an overview of the underwater noise levels which are emitted by the environmental survey equipment and GI works at 1m from the source.

Table 2.7 Noise levels emitted by the environmental survey equipment.

Sound Type	SIL (dB ref µPa at 1 m)	Frequency (kHz)	Within marine mammal and fishes frequency hearing ranges
Environmental Surveys			
Acoustic Doppler Current Profiler (ADCP) (Model: Signature1000)	217	600-1000	No
Vessel (Sediment Sampling)	180	<1	Yes
GI Works			
Cable Percussion (CP)	220	<0.5	Yes
Rotary Core (RC)	170	0.5-5	Yes
Multi-Beam Echo Sounder (MBES)	210-245	200 - 500	No
Side Scan Sonar (SSS)	200 - 240	200 - 700	No
Sub-Bottom Profiling (SBP)	185 - 215	2 – 15	Yes
Vessel	180	<1	Yes

Marine Mammals

With regard to marine mammals, the lowest threshold for TTS in cetaceans is 183 dB SEL and for pinnipeds it is 171dB SEL (Southall et al. 2007). These are presented in Table 2.8.

Table 2.8 Marine mammal, migratory fish and diving bird noise exposure criteria given by Southall et al. (2007).

Species	Hearing group and estimated auditory bandwidth (kHz)	Exposure Criteria (SPL – sound pressure level[11], SEL – sound exposure level[12])			Could the sub-bottom profiler (assumed at SPL 215 dB re 1 µPa) have an effect?
		PTS – onset *	TTS-onset	Behavioural response	
Harbour Porpoise	High-frequency cetaceans 0.2 - 180 kHz	230 dB SPL 198 dB SEL	224 dB SPL 183 dB SEL	90-170 dB RL [13]	No potential for PTS or TTS. Yes - potential for behavioural response.
Bottlenose Dolphin	Mid-frequency cetaceans 0.15 - 160 kHz	230 dB SPL 198 dB SEL	224 dB SPL 183 dB SEL	90-200 dB RL	No potential for PTS or TTS. Yes - potential for behavioural response.
Pinnipeds Harbour Seal Grey Seal	Pinnipeds in water 0.075 - 75 kHz	218 dB SPL 203 dB SEL	212 dB SPL 171 dB SEL	100+ dB RL	Yes – potential for PTS, TTS and behavioural response at source.
Migratory Fish Twaite Shad River Lamprey Sea Lamprey Atlantic Salmon	0.1-5 kHz	205 dB SPL 183 dB SEL	205 dB SPL 183 dB SEL	205 dB SPL 183 dB SEL	Yes – potential for PTS, TTS and behavioural response.

[11] Sound Pressure Level (SPL) – A logarithmic measure in decibels (dB) of the average pressure level in water/air, with respect to a standard reference pressure (i.e., re. 1µPa in water or 20µPa in air). Commonly standardised to a distance of 1 metre from the source (i.e., @ 1m), SPL represents the amplitude of a sound's waveform and it may be measured in a number of ways including peak or peak-to-peak (for short duration sounds) and root mean square (i.e., rms) estimates (for continuous sounds).
[12] Sound Exposure Level (SEL) – A measure of sound energy over a given duration, i.e., time integral of instantaneous sound pressure squared, normalised to a 1 second period (dB re. µPa2–s or µPa2.s).
[13] Sound Received Level (RL) – the pressure level measured at the receiver, e.g., mammal.

Species	Hearing group and estimated auditory bandwidth (kHz)	Exposure Criteria (SPL – sound pressure level[11], SEL – sound exposure level[12])			Could the sub-bottom profiler (assumed at SPL 215 dB re 1 µPa) have an effect?
		PTS – onset *	TTS-onset	Behavioural response	
Diving Seabirds	1-4 kHz	Not available		70-75 dB SEL[14]	Yes - potential for behavioural response.

*This table uses the lowest estimate for impacts across single-pulse and non-pulse noise sources

Otter

Otter are likely to be in the River Slaney during the proposed works and can detect underwater frequencies between 1 and 14 kHz (Smith & Jones, 2024). Otter TTS onset has been recorded as 226 dB SPL (Southall et al., 2019). The Sub-Bottom Profiler is within the hearing range for Otter, but the sound output is below the noise levels that could cause injury to Otter (Southall, et al., 2019). Nevertheless, there is potential for Otter to be impacted by underwater noise as a result of the proposed works.

Birds

Although research into the underwater hearing abilities in diving birds is limited, studies have suggested underwater hearing threshold for Cormorant (*Phalacrocorax carbo*) to be 70-75 dB re 1µPa for tones at frequencies of 1-4 kHz (Hansen et al. 2017). A precautionary threshold of 70-75dB SEL with frequencies of 1-4kHz has been adopted for this assessment based on information in Hansen et al. (2017).

This underwater hearing sensitivity suggests the use of auditory cues for foraging and/or orientation and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, diving birds have the potential to be impacted by underwater noise as a result of the proposed works.

Fisheries and Aquatic Fauna

Fish exhibit a high degree of variability in terms of sensitivity to sound impacts between different hearing-sensitive groups. Some research suggests that non-hearing specialist fish are 100-times less sensitive to sound than hearing specialists. A precautionary threshold of 186dB SEL has been adopted for this assessment based on information in Popper et al. (2014).

Based on the sound frequencies that will be emitted during the ground investigation and environmental surveys, as listed in Table 2.7, and the hearing ranges of the species described above, there is a potential impact to marine mammals, otter, diving birds, fisheries and aquatic fauna as a result of the proposed works.

[14] This is the level at which sound was recorded as detectable in Cormorant, not necessarily the level at which injury or negative behavioural responses could occur (Hansen et al. (2017).

Airborne noise

Otter

The proposed works provide a source of airborne noise, which has the potential to cause disturbance to otter. Engines and generators operating can produce noise levels ranging from 80–120 dB(A) at the source. While this is below the TTS onset for this species, as described above, in an abundance of caution, there is potential for impacts to Otter as a result of the proposed works via airborne noise.

Birds

The proposed works provide a source of airborne noise, which has the potential to cause disturbance to birds. Engines and generators operating can produce noise levels ranging from 80–120 dB(A) at the source. These noise sources would produce a regular source of sound above 70 dB(A) which may result in a 'moderate' response from birds (Cutts *et al.*, 2013). Regular or constant sources of noise result in lower disturbance responses from bird species regardless of noise level, e.g. a dropped piece of scaffold at 65 dB will cause a greater disturbance reaction than ongoing vibratory piling at 80 dB(A).

70dB(A) is considered acceptable for birds. An 'acceptable dose level' of noise is that which would not result in any impact to birds or that which may occasionally induce a low-level behavioural response such as a heads-up. 120 dB(A) would reduce to 70 dB(A) at a distance of 316m. Therefore, noise disturbance to birds may occur within 316m of the proposed works.

However, given that the environmental surveys and GI works will take place in proximity to the existing N11 and the R730, there is a higher level of ambient noise due to the road traffic along and over the estuary and the area that would be impacted by noise is likely to be much less than 316m. Furthermore, birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads and shipping traffic in Wexford Harbour downstream of the proposed works.

Nevertheless, in an abundance of caution, there is potential for impacts to bird species as a result of the proposed works via airborne noise.

Visual disturbance/displacement

The presence of humans and vessels working in the Lower Slaney Estuary may cause visual disturbance to species (e.g. otter, bird species) in the water or on the mudflats exposed at low tide. Disturbance due to visual stimuli may occur up to 500m from the source for some highly sensitive species (Cutts *et al.*, 2013).

Habitat loss/physical habitat disturbance

The sediment surveys and grab sampling require removal of sediment from the riverbed. The locations of the sediment sampling sites are presented above in Figure 2.1. The sediment sampling will occur in a small area for a brief period of time (i.e. hours). There is a potential risk of suspending contaminants from the sediment

during sampling which could lead to heavy metals or other contaminants entering the food chain. Therefore, negative water quality impacts cannot be ruled out at this stage.

The sediment sampling surveys require the removal of sediment from the riverbed. Aquatic species, such as fish, have the potential to be present in the vicinity of the sampling locations and would be disturbed/ displaced. However, this would be over a very small area, and fish and marine mammals would have ample time to move outside the area where the sampling was taking place.

Water quality

Threats to watercourses and associated habitats potentially include the mobilisation of sediment within the estuary during the environmental surveys and GI works as well as the release of pollutants such as fuels and hydrocarbons from vessels associated with the proposed works. The proposed works are of a nature and scale that any water quality impacts would be very localised and will dissipate in a very short time. The risk of pollution to the aquatic environment from such sources outlined above, particularly into the Slaney Estuary, arising from the environmental surveys and GI works is minimal.

Nevertheless, in an abundance of caution, there is potential for water quality impacts to aquatic species and their supporting habitats as a result of the proposed works.

3. IDENTIFICATION OF ADVERSE EFFECTS

3.1 Establishing the Zone of Influence

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project.

In the marine environment, a Zone of Influence can be extensive as pollution and materials can easily be transported elsewhere and currents and waves can be altered causing effects well beyond the site and effects on mobile species may be manifest elsewhere (CIEEM, 2018).

The AA Screening determination published by MARA (Appendix A) identified the European sites where likely significant effects could not be excluded on the basis of the best scientific knowledge in the field and the Precautionary Principle.

It was determined that likely significant effects on the integrity of nine European sites could not be excluded. Table 3.1 below lists these European sites and describes how those sites are connected to the proposed works. There are no other pathways (including potential ex-situ pathways) between the proposed works and any European sites, other than those listed in Table 3.1. Detailed descriptions of the sites are presented in Appendix B.

Table 3.1 European sites located within the Zone of Influence

European site [site code]	Are there pathways for adverse effects arising from the proposed works on this site? Explain.
Slaney River Valley SAC [000781]	Yes. This European site is located within the boundary of the proposed works. Due to the proximity between the proposed works and this European site, there are potential pathways for adverse effects.
Wexford Harbour and Slobs SPA [004076]	Yes. This European site is located within the boundary of the proposed works. Due to the proximity between the proposed works and this European site, there are potential pathways for adverse effects.
The Raven SPA [004019]	Yes. This European site is located 8.5km east of the proposed works. This site is designated for Qualifying Interests that could occur close to the proposed works. Therefore, there are potential pathways for adverse effects.
Seas off Wexford SPA [004237]	Yes. This European site is located 9.4km southeast of the proposed works. This site is designated for Qualifying Interests that could occur close to the proposed works. Therefore, there are potential pathways for adverse effects.
Blackwater Bank SAC [002953]	Yes. This European site is located 17.1km east of the proposed works. One of the Qualifying Interests, Harbour Porpoise, is highly mobile and could occur in the area of the proposed works. Therefore, there are potential pathways for adverse effects.
Carnsore Point SAC [2269]	Yes. This European site is located 17km southeast of the proposed works. One of the Qualifying Interests, Harbour Porpoise, is highly mobile and could occur in the area of the proposed works. Therefore, there are potential pathways for adverse effects.
Saltee Islands SAC [000707]	Yes. This European site is located 17.8km south of the proposed works. Mobile individuals associated with the SAC may occur within the zone of influence of

European site [site code]	Are there pathways for adverse effects arising from the proposed works on this site? Explain.
	the proposed project and may be exposed to underwater noise. Therefore, ex-situ impacts are considered to exist.
Saltee Islands SPA [004002]	Yes. This European site is located 22.4km south of the proposed works. Due to the foraging ranges of the Qualifying Interests of this European site, ex-situ impacts are considered to exist.
Hook Head SAC [000764]	Yes. This European site is located 24.1km southwest of the proposed works. Mobile individuals associated with the SAC may occur within the zone of influence of the proposed project and may be exposed to underwater noise. Therefore, ex-situ impacts are considered to exist.

3.2 Evaluation against Conservation Objectives

Table 3.2 to Table 3.10 below detail the evaluation of the potential for adverse effects of the proposed works, in view of the Conservation Objectives of the sites identified in Section 3.1. As explained in Sections 1.3 and 1.4, AA is carried out in view of the Conservation Objectives of the relevant European sites, which are in turn defined by detailed Attributes and corresponding Targets. Therefore, the evaluation of whether or not an impact could have the potential to result in adverse effects (in view of the Conservation Objective in question) is made with regard to these Attributes and Targets.

The Conservation Objectives and associated Attributes and Targets for each respective Qualifying Interest species are the same for all sites in which the Qualifying Interest is designated; therefore the evaluation has been carried out in view of the type of impact which could result in an adverse effect. The evaluation thus applies for all sites within the Zone of Influence for which the Qualifying Interest is designated. To carry out the evaluation for each individual site would lead to undue repetition.

Table 3.2 Evaluation of the adverse effects of the proposed works in view of the Conservation Objectives of the Slaney River Valley SAC.

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***Lutra lutra* (Otter) [1355]**	*"To restore the favourable conservation condition of Otter in the Slaney River Valley SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Distribution", "Extent of terrestrial habitat", "Extent of marine habitat", "Extent of freshwater (river) habitat", "Extent of freshwater (lake/lagoon) habitat", "Couching sites and holts", "Fish biomass available",* and *"Barriers to connectivity".* While no evidence of otter breeding or resting places (e.g holts) were recorded during mammal surveys, live Otters were recorded in the Slaney Estuary in proximity to the proposed works locations during wintering bird surveys in March 2024 and December 2025. Otter typically have territories between 2km and 32km in length, however, can be as far as 80km (Kruuk, 1995). <u>Airborne Noise</u> With regard to airborne noise, engines from vessels can produce noise levels typically 15-175Db@1m and at a frequency of 0.1-2 kHz. This is within the hearing range of otter although the noise level is below the TTS onset that could cause injury to Otter. Works associated with ground investigations (such as vertical open hole rotary drilling and rock coring) may result in disturbance to Otter. Therefore, acoustic-related impacts to Otter as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Otter can detect underwater frequencies between 1 and 14 kHz (Smith & Jones, 2024). Otter TTS onset has been recorded as 226 dB SPL (Southall et al., 2019). The Sub-Bottom Profiler is within the hearing range for Otter (2 – 15kHz), but the sound output (185 – 215 dB) is below the noise level that could cause injury to Otter (Southall, et al., 2019). Given these findings, there will be no acoustic-related impacts to Otter as a result of underwater noise during the proposed works.	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		Visual Disturbance The presence of the heritage park, the N11 and occasional boat traffic in the area means that otter in the vicinity will be habituated to the presence of vessels and people. The proposed works will occur in a small area for a brief period of time. Therefore, any effects of visual disturbance would be negligible. Water Quality The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
***Phoca vitulina* (Harbour Seal) [1365]**	*"To maintain the favourable conservation condition of Harbour Seal in the Slaney River Valley SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Access to suitable habitat", "Breeding behaviour", "Moulting behaviour", "Resting behaviour" and "Disturbance".* Harbour Seal has been recorded in Wexford Harbour, and this species was also recorded in the area of the proposed works during the ecological surveys. Underwater Noise Harbour Seal can detect underwater frequencies between 0.075 and 75 kHz (Southall et al., 2007). Harbour Seal TTS onset has been recorded as 212 dB SPL (Southall et al., 2007). The Sub-Bottom Profiler is within the hearing range for Harbour Seal, and the sound output (185 – 215 dB) is within the TTS onset. Given these findings, there may be acoustic-related impacts to Harbour Seal as a result of underwater noise during the proposed works. Airborne Noise Engines from vessels can produce noise levels typically 80-110 dB@1m and at a frequency of 0.1-2 kHz. Seals are less sensitive to airborne noise because their auditory systems are anatomically adapted for underwater sound transmission, making them less efficient at detecting sound transmitted through air. Considering that there are no published limits relating to airborne noise for Harbour Seal, there is a risk that airborne noise could lead to adverse effects.	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		Visual Disturbance The presence of the heritage park, the N11 and occasional boat traffic in the area means that Harbour Seal in the vicinity will be habituated to the presence of vessels and people. The proposed works will occur in a small area for a brief period of time. Therefore, any effects of visual disturbance would be negligible. Water Quality The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Estuaries [1130]	*"To maintain the favourable conservation condition of Estuaries in the Slaney River Valley SAC"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on "*Habitat area*" and "*Community distribution*". These habitats occur within the area of the proposed works. Water Quality and Habitat Disturbance The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.The tidal nature of the habitats at the location of the sampling sites is such that, any disturbance to the river bed would fill in and return to its former condition in a short space of time.	Yes
Mudflats and sandflats not covered by seawater at low tide [1140]	*"To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Slaney River Valley SAC"*		Yes
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	*"To restore the Favourable conservation condition of Atlantic salt meadows (Glauco*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area", "Habitat distribution", "Physical structure: hydrology", "Disturbed ground", "Signs of negative activities e.g. infilling, reclamation, turf cutting, pollution", "Vegetation structure: zonation", "Vegetation structure: spatial transitions", "Vegetation structure: plant height", "Vegetation composition: typical species (positive indicators)", "Vegetation composition: negative indicator species", "Vegetation composition: negative indicator species: presence of Spartina spp. within vicinity of habitat", and*	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
	Puccinellietalia maritimae) in the Slaney River Valley SAC."	*"Indicators of local distinctiveness: site-specific target features (including rare and notable species)".* This habitat was recorded on the riverside of the existing estuary wall along the southern boundary of the MUL area in proximity to the proposed works areas during habitat surveys undertaken in April 2024. This habitat has the potential to be present in other areas within the Slaney Estuary. None of the proposed works are located within the areas where this habitat was recorded and there will be no land take of this habitat for the purposes of the proposed works. The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
***Alosa fallax fallax* (Twaite Shad) [1103]**	*"To restore the favourable conservation condition of Twaite Shad in the Slaney River Valley SAC"*	The Attributes of the Conservation Objective for this Qualifying Interest focuses on "*Distribution: extent of anadromy*", "*Population structure- age classes*", "*Extent and distribution of spawning habitat*", "*Water quality- oxygen levels*", and "*Spawning habitat quality: Filamentous algae; macrophytes; sediment*". Twaite shad are found in coastal waters, and spawn close to the upper tidal limit, which is close to Enniscorthy (c. 20km upstream). <u>Underwater Noise</u> Twaite Shad is a hearing specialist species and is vulnerable to noise disturbance arising from the proposed works. A precautionary hearing threshold of 186dB SEL has been adopted for this assessment based on information in Popper et al. (2014). The sound emittance from the sub-bottom profiler (185 – 215dB) is within the hearing range of Twaite Shad and will emit noise at levels that has the potential to cause injury. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***Petromyzon marinus* (Sea Lamprey) [1095]**	*"To restore the favourable conservation condition of Sea Lamprey in the Slaney River Valley SAC"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on "*Distribution*" / "*Distribution: extent of anadromy*", "*Population structure of juveniles*", "*Juvenile density in fine sediment*", "*Extent and distribution of spawning habitat*", and "*Availability of juvenile habitat*". Sea Lamprey and River Lamprey migrate upstream from the sea to their spawning grounds in freshwater rivers. Newly metamorphosed adults migrate downstream from their juvenile habitats to the sea to feed as adults. These species are likely to be present in the vicinity of the proposed works during their adult phase. <u>Underwater Noise</u> A precautionary hearing threshold of 186dB SEL has been adopted for this assessment based on information in Popper et al. (2014). The sound emittance from the sub-bottom profiler (185 – 215dB) is within the hearing ranges of these species and will emit noise at levels that has the potential to cause injury. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
***Lampetra fluviatilis* (River Lamprey) [1099]**	*"To restore the favourable conservation condition of River Lamprey in the Slaney River Valley SAC"*		Yes
***Lampetra planeri* (Brook Lamprey) [1096]**	*"To restore the favourable conservation condition of Brook Lamprey in the Slaney River Valley SAC"*	The Attributes of the Conservation Objective for this Qualifying Interest focuses on "*Distribution*", "*Population structure of juveniles*", "*Juvenile density in fine sediment*", "*Extent and distribution of spawning habitat*", and "*Availability of juvenile habitat*". Brook Lamprey is an exclusively freshwater species and is restricted to the freshwater stretches of the River Slaney and its tributaries. <u>Underwater Noise</u> There is no potential for this species to be present in the area of the proposed works and there are no pathways for underwater noise to reach the freshwater habitats in the Slaney catchment. <u>Water Quality</u> The potential impacts of the proposed works on water quality are limited to the area around the	No

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		proposed works. There are no pathways for pollutants to reach the freshwater habitats in the Slaney catchment.	
***Salmo salar* (Salmon) [1106]**	*"To restore the favourable conservation condition of Salmon in the Slaney River Valley SAC"*	The Attributes of the Conservation Objective for this Qualifying Interest focuses on "*Distribution: extent of anadromy*", "*Adult spawning fish*", "*Salmon fry abundance*", "*Out-migrating smolt abundance*", "*Number and distribution of redds*", and "*Water quality*". Atlantic Salmon is an anadromous species, i.e., the adult life stage is marine, with mature fish returning to their natal freshwater streams to spawn. Adults can begin their spawning migration at any time of year, but there are two main migration periods. Movement of spawning salmon upstream through the estuary is predominantly nocturnal and usually occurs on the ebb tide (Smith & Smith, 1997). Once spawning has occurred, most adults die, though as many as 36% may survive and return to sea as kelts (Hendry & Cragg-Hine, 2003). <u>Underwater Noise</u> A precautionary hearing threshold of 186dB SEL has been adopted for this assessment based on information in Popper et al. (2014). The sound emittance from the sub-bottom profiler (185 – 215dB) is within the hearing ranges of these species and will emit noise at levels that has the potential to cause injury. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
***Margaritifera margaritifera* Freshwater Pearl Mussel [1029]**	*"To restore the favourable conservation condition of Freshwater Pearl Mussel in the Slaney River Valley SAC"*	The Attributes of the Conservation Objective for this Qualifying Interest focus on "*Distribution*", "*Population size*", "*Population structure: recruitment*", "*Population structure: adult mortality*", "*Suitable habitat: extent*", "*Suitable habitat: condition*", "*Water quality: macroinvertebrates and phytobenthos (diatoms)*", "*Substratum quality: filamentous algae (macroalgae); macrophytes (rooted higher plants)*", "*Substratum quality: sediment*", "*Substratum quality: oxygen availability*", "*Hydrological regime: flow variability*", "*Host fish*", and "*Fringing habitat: area and condition*". Freshwater Pearl Mussel is an exclusively freshwater species and is restricted to the freshwater stretches of the River Slaney which is located in Enniscorthy at least 20.3km upstream from the proposed works.	No

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		<u>Underwater Noise</u> There is no potential for this species to be present in the area of the proposed works and there are no pathways for underwater noise to reach the freshwater habitats in the Slaney catchment. <u>Water Quality</u> The potential impacts of the proposed works on water quality are limited to the area around the proposed works. There are no pathways for pollutants to reach the freshwater habitats in the Slaney catchment. <u>Reproductive Cycle</u> Freshwater Pearl Mussel depend on salmonids (salmon and trout) for part of their life cycle. The proposed works has the potential of affect Salmon and Sea Trout migrating up the Slaney, and this could, in theory, limit the availability of host fish. In reality the availability of host fish is not a limiting factor in the reproduction of Freshwater Pearl Mussel and even without Salmon and Sea Trout, there would still be enough brown trout to support the population of Freshwater Pearl Mussel in the Slaney.	
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	*To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the Slaney River Valley SAC*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *""Habitat distribution", "Habitat area", "Hydrological regime: river flow", "Hydrological regime: tidal influence", "Substratum composition: particle size range", "Water quality: nutrients", "Vegetation composition: typical species",* and *"Floodplain connectivity: area".* This Qualifying Interest is a freshwater habitat which occurs in the tidal reaches of the Slaney near Enniscorthy, and in two tributaries of the Slaney, the Derry and Derreen. While mapping is not available for this Qualifying Interest, the closest known location of this habitat occurs approximately 8.1km upstream of the proposed works, however unknown areas of this habitat in close proximity to the works may exist. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	No

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	*To restore the favourable conservation condition of old sessile oakwoods with Ilex and Blechnum in the Slaney River Valley SAC*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area", "Habitat distribution", "Woodland size", "Woodland structure: cover and height", "Woodland structure: community diversity and extent", "Woodland structure: natural regeneration", "Woodland structure: dead wood", "Woodland structure: veteran trees", "Woodland structure: indicators of local distinctiveness", "Vegetation composition: native tree cover", "Vegetation composition: typical species" and "Vegetation composition: negative indicator species".* This terrestrial habitat is not present in the vicinity of the proposed works. The closest record of this Qualifying Interest occurs approximately 17km north of the proposed works boundary (NPWS, 2026a). There are no pathways between the proposed development and this Qualifying Interest.	No
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	*To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion) in the Slaney River Valley SAC*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area", "Habitat distribution", "Woodland size", "Woodland structure: cover and height", "Woodland structure: community diversity and extent", "Woodland structure: natural regeneration", "Hydrological regime: flooding depth/height of water table", "Woodland structure: dead wood", "Woodland structure: veteran trees", "Woodland structure: indicators of local distinctiveness", "Vegetation composition: native tree cover", "Vegetation composition: typical species" and "Vegetation composition: negative indicator species".* This habitat was not recorded within the study area during the ecological surveys. The closest record of this habitat occurs approximately 5km northwest of the proposed works boundary. This is a terrestrial habitat and there will be no land-take of this habitat for the purposes of the proposed works. There are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	*To restore the Favourable conservation condition of Mediterranean salt meadows (Juncetalia maritimi) in Slaney River Valley SAC*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area", "Habitat distribution", "Physical structure: hydrology", "Vegetation structure: spatial transitions", "Disturbed ground", "Signs of negative activities e.g. infilling, reclamation, turf cutting, pollution", "Vegetation composition: typical species (positive indicators)", "Vegetation composition: negative indicator species", "Vegetation composition: negative indicator species: presence of Spartina spp. within vicinity of habitat" and "Indicators of local distinctiveness: site-specific target features (including rare and notable species)".* This habitat was recorded on the riverside of the existing estuary wall along the southern boundary of the MUL area in proximity to the proposed works areas during habitat surveys undertaken in April 2024. This habitat has the potential to be present in other areas within the Slaney Estuary. None of the proposed works are located within the areas where this habitat was recorded and there will be no land take of this habitat for the purposes of the proposed works.	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2026b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		Water Quality The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	

Table 3.3 Evaluation of the likely effects of the proposed works in view of the Conservation Objectives of the Wexford Harbour and Slobs SPA [004076].

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Cormorant (*Phalacrocorax carbo*) [A017]	*"To maintain the favourable conservation condition of Cormorant in Wexford Harbour and Slobs SPA."*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Population trend"* and *"Distribution".* Airborne Noise & Visual Disturbance However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage.	Yes
Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	*"To maintain the favourable conservation condition of Black-headed Gull in the Wexford Harbour and Slobs SPA."*		Yes
Lesser Black-backed Gull (*Larus fuscus*) [A183]	*"To maintain the favourable conservation condition of Lesser Black-backed Gull in the Wexford Harbour and Slobs SPA."*		Yes
Little Grebe (*Tachybaptus*	*"To maintain the favourable conservation condition of Little Grebe*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***uficollis*) [A004]**	*in Wexford Harbour and Slobs SPA."*	Underwater Noise Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. Water Quality The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Great Crested Grebe (*Podiceps cristatus*) [A005]	*"To maintain the favourable conservation condition of Great Crested Grebe in Wexford Harbour and Slobs SPA."*		Yes
Grey Heron (*Ardea cinerea*) [A028]	*"To maintain the favourable conservation condition of Grey Heron in Wexford Harbour and Slobs SPA."*		Yes
Bewick's Swan (*Cygnus columbianus bewickii* [A037]	*"To maintain the favourable conservation condition of Bewick's Swan in Wexford Harbour and Slobs SPA."*		Yes
Whooper Swan (*Cygnus cygnus*) [A038]	*"To maintain the favourable conservation condition of Whooper Swan in Wexford Harbour and Slobs SPA."*		Yes
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	*"To maintain the favourable conservation condition of Light-bellied Brent Goose in Wexford Harbour and Slobs SPA."*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Shelduck (*Tadorna tadorna*) [A048]	*"To maintain the favourable conservation condition of Shelduck in Wexford Harbour and Slobs SPA."*		Yes
Teal (*Anas crecca*) [A052]	*"To maintain the favourable conservation condition of Teal in the Wexford Harbour and Slobs SPA."*		Yes
Mallard (*Anas platyrhynchos*) [A053]	*"To maintain the favourable conservation condition of Mallard in the Wexford Harbour and Slobs SPA."*		Yes
Pintail (*Anas acuta*) [A054]	*"To maintain the favourable conservation condition of Pintail in the Wexford Harbour and Slobs SPA."*		Yes
Scaup (*Aythya marila*) [A062]	*"To maintain the favourable conservation condition of Scaup in the Wexford Harbour and Slobs SPA."*		Yes
Goldeneye (*Bucephala clangula*) [A067]	*"To maintain the favourable conservation condition of Goldeneye in the Wexford Harbour and Slobs SPA."*		Yes
			Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Red-breasted Merganser (*Mergus serrator*) [A069]	*"To maintain the favourable conservation condition of Red-breasted Merganser in the Wexford Harbour and Slobs SPA."*		Yes
Coot (*Fulica atra*) [A125]	*"To maintain the favourable conservation condition of Coot in the Wexford Harbour and Slobs SPA."*		Yes
Oystercatcher (*Haematopus ostralegus*) [A130]	*"To maintain the favourable conservation condition of Oystercatcher in the Wexford Harbour and Slobs SPA."*		Yes
Golden Plover (*Pluvialis apricaria*) [A140]	*"To maintain the favourable conservation condition of Golden Plover in the Wexford Harbour and Slobs SPA."*		Yes
Grey Plover (*Pluvialis squatarola*) [A141]	*"To maintain the favourable conservation condition of Grey Plover in the Wexford Harbour and Slobs SPA."*		Yes
Lapwing (*Vanellus*	*"To maintain the favourable conservation condition of Lapwing in*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***vanellus*) [A142]**	*the Wexford Harbour and Slobs SPA."*		
Knot (*Calidris canutus*) [A143]	*"To maintain the favourable conservation condition of Knot in the Wexford Harbour and Slobs SPA."*		Yes
Sanderling (*Calidris alba*) [A144]	*"To maintain the favourable conservation condition of Sanderling in the Wexford Harbour and Slobs SPA."*		Yes
Dunlin (*Calidris alpina*) [A149]	*"To maintain the favourable conservation condition of Dunlin in the Wexford Harbour and Slobs SPA."*		Yes
Black-tailed Godwit *(Limosa limosa*) [A156]	*"To maintain the favourable conservation condition of Black-tailed Godwit in the Wexford Harbour and Slobs SPA."*		Yes
Bar-tailed Godwit (*Limosa lapponica*) [A157]	*"To maintain the favourable conservation condition of Bar-tailed Godwit in the Wexford Harbour and Slobs SPA."*		Yes
Curlew (*Numenius	*"To maintain the favourable conservation*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***arquata*) [A160]**	*condition of Curlew in the Wexford Harbour and Slobs SPA."*		
Redshank (*Tringa totanus*) [A162]	*"To maintain the favourable conservation condition of Redshank in the Wexford Harbour and Slobs SPA."*		Yes
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	*"To maintain the favourable conservation condition of Greenland White-fronted Goose in the Wexford Harbour and Slobs SPA."*		Yes
Wigeon (*Mareca penelope*) [A855]	*"To maintain the favourable conservation condition of Wigeon in the Wexford Harbour and Slobs SPA."*		Yes
Hen Harrier (*Circus cyaneus*) [A082]	*"To maintain the favourable conservation condition of Hen Harrier in the Wexford Harbour and Slobs SPA."*	The Attributes of the Conservation Objectives for Hen Harrier focus on *"Roost attendance: individual hen harriers", "Suitable foraging habitat", "Roost site: condition",* and *"Disturbance at the roost site".* <u>Airborne Noise and Visual Disturbance</u> No hen harriers were recorded during survey undertaken specifically to identify winter roosts. Nevertheless, there is suitable habitat for hen harrier in the wider area. Hen Harrier frequency range is from 3-6kHz (Citron et al., 2025). Considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a certain level of noise and visual disturbance in the area already.	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage.	
Little Tern (*Sternula albifrons*) [A885]	*"To maintain the favourable conservation condition of Little Tern in the Wexford Harbour and Slobs SPA."*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Breeding population abundance: apparently occupied nests (AONs)"," Productivity rate: fledged young per breeding", "Distribution: breeding colonies", "Prey biomass available", "Barriers to connectivity",* and *"Disturbance at the breeding site".* Airborne Noise & Visual Disturbance Little tern nest on the shingle or rocky islands and beaches, including around Wexford Harbour. The mean-max foraging range for Little Tern, is 5km from their nesting site. The habitats in which terns nest are dynamic and vary year to year. It is possible, although highly unlikely that tern colonies could be within 5km of the proposed works. Given that this species primarily forages in waters close to breeding colonies, the area surrounding the proposed works does not provide optimal foraging habitat. However, out of an abundance of caution, airborne and visual disturbance to Little Tern during the proposed works cannot be ruled out at this stage. Underwater Noise It is possible that Little tern could feed in proximity to the proposed works. Out of an abundance of caution, there is potential for underwater noise disturbance to little tern. Water Quality The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Wetland and Waterbirds [A999]	*"To maintain the favourable condition of the wetland habitat in Wexford Slobs SPA as resource for the regularly occurring migratory waterbirds that utilise it."*	The Conservation Objective for Wetlands is defined by a single Attribute, namely "*Habitat area*", the Target for which is "*The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,241ha, other than that due to natural patterns of variation*". The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects	Yes

Table 3.4 Evaluation of the likely effects of the proposed works in view of the Conservation Objectives of The Raven SPA [004019].

Qualifying Interest	Conservation Objective as per the NPWS (2012a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Red-throated Diver (*Gavia stellata*) [A001]	*"To maintain the favourable conservation condition of Red-throated Diver in The Raven SPA"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on *"Population trend and Distribution".* <u>Airborne Noise & Visual Disturbance</u> However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Cormorant (*Phalacrocorax carbo*) [A017]	*"To maintain the favourable conservation condition of Cormorant in The Raven SPA"*		Yes
Common Scoter (*Melanitta nigra*) [A065]	*"To maintain the favourable conservation condition of Common Scoter in The Raven SPA"*		Yes
Grey Plover (*Pluvialis squatarola*) [A141]	*"To maintain the favourable conservation condition of Grey Plover in The Raven SPA"*		Yes
Sanderling (*Calidris alba*) [A144]	*"To maintain the favourable conservation condition of Sanderling in The Raven SPA"*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2012a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	*"To maintain the favourable conservation condition of Greenland White-fronted Goose in The Raven SPA"*		Yes
Wetlands [A999]	*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.*	The Conservation Objective for Wetlands is defined by a single Attribute, namely "*Wetland habitat area*", the Target for which is "*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*". The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes

Table 3.5 Evaluation of the likely effects of the proposed works in view of the Conservation Objectives of the Seas off Wexford SPA [004237].

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Red-throated Diver (*Gavia stellata*) [A001]	*"To maintain the favourable conservation condition of Red-throated Diver at Seas off Wexford SPA"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on "*Non-breeding population size*", "*Spatial distribution*", "*Forage spatial distribution, extent and abundance*", "*Disturbance across the site*" and "*Barriers to connectivity*".	Yes

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Common Scoter (*Melanitta nigra*) [A065]	*"To maintain the favourable conservation condition of Common Scoter at Seas off Wexford SPA"*	This European site is located 9.4km east of the proposed works. These species were not recorded during any of the wintering bird surveys undertaken for the proposed works. <u>Airborne Noise & Visual Disturbance</u> However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Mediterranean Gull (*Larus melanocephalus*) [A176]	*"To maintain the favourable conservation condition of Mediterranean Gull at Seas off Wexford SPA"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on "*Breeding population size*", "*Spatial distribution*", "*Forage spatial distribution, extent and abundance*", "*Disturbance across the site*" and "*Barriers to connectivity*". This European site is located 9.4km east of the proposed works.	Yes

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	*"To maintain the favourable conservation condition of Black-headed Gull at Seas off Wexford SPA"*	<u>Airborne and Visual Disturbance</u> These species may occur in the area of the proposed works, and some were recorded during ecological surveys, including Sandwich Tern, Cormorant, and Black-headed Gull. Therefore, airborne and visual disturbance to these species during the proposed works cannot be ruled out. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, diving birds have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Lesser Black-backed Gull (*Larus fuscus*) [A183]	*"To maintain the favourable conservation condition of Lesser Black-backed Gull at Seas off Wexford SPA"*		Yes
Herring Gull (*Larus argentatus*) [A184]	*"To maintain the favourable conservation condition of Herring Gull at Seas off Wexford SPA"*		Yes
Shag (*Phalacrocorax aristotelis*) [A018]	*"To restore the favourable conservation condition of Shag at Seas off Wexford SPA"*		Yes
Guillemot (*Uria aalge*) [A199]	*"To maintain the favourable conservation condition of Guillemot at Seas off Wexford SPA"*		Yes
Razorbill (*Alca torda*) [A200]	*"To maintain the favourable conservation condition of Razorbill at Seas off Wexford SPA"*		Yes
Sandwich Tern (*Sterna sandvicensis*) [A191]	*"To maintain the favourable conservation condition of Sandwich Tern at Seas off Wexford SPA"*		Yes
Roseate Tern (*Sterna dougalii*) [A192]	*"To maintain the favourable conservation condition of Roseate Tern at Seas off Wexford SPA"*		Yes

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Common Tern (*Sterna hirundo*) [A193]	*"To maintain the favourable conservation condition of Common Tern at Seas off Wexford SPA"*		Yes
Arctic Tern (*Sterna paradisaea*) [A194]	*"To maintain the favourable conservation condition of Arctic Tern at Seas off Wexford SPA"*		Yes
Cormorant (*Phalacrocorax carbo*) [A017]	*"To restore the favourable conservation condition of Cormorant at Seas off Wexford SPA"*		Yes
Fulmar (*Fulmarus glacialis*) [A009]	*"To restore the favourable conservation condition of Fulmar at Seas off Wexford SPA"*	The Attributes of the Conservation Objectives for these Qualifying Interests focus on "*Breeding population size*", "*Spatial distribution*", "*Forage spatial distribution, extent and abundance*", "*Disturbance across the site*" and "*Barriers to connectivity*". <u>Disturbance</u> Fulmar breed in colonies located along the coast of Ireland, foraging over a widespread range of marine waters throughout the year, with a general preference exhibited toward offshore areas (Jessopp et al., 2018). The closest known breeding colony of this species to the proposed works is located at the Saltee Islands SPA c. 22km south of the proposed works. Fulmar primarily forage out to sea and are very unlikely to forage in the vicinity of the proposed works, therefore there is no potential for the proposed works to cause noise or visual disturbance that would cause impacts to Fulmar. Puffins, and Manx shearwater breed on islands off the coast of Ireland and forage in deep waters along the east coast during summer, spending winter further offshore and in the case of the Manx shearwater, in the southern hemisphere. Therefore, there is no potential for these species to occur within the vicinity of the proposed works and thus there is no potential	No
Manx Shearwater (*Puffinus puffinus*) [A013]	*"To maintain the favourable conservation condition of Manx Shearwater at Seas off Wexford SPA"*		No
Gannet (*Morus bassanus*) [A016]	*"To maintain the favourable conservation condition of Gannet at Seas off Wexford SPA"*		No
Kittiwake (*Rissa tridactyla*) [A188]	*"To restore the favourable conservation condition of Kittiwake at Seas off Wexford SPA"*		No

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Puffin (*Fratercula arctica*) [A204]	*"To restore the favourable conservation condition of Puffin at Seas off Wexford SPA"*	for the proposed works to cause noise or visual disturbance that would cause impacts to these species. The closest SPAs to the proposed works for which Gannet are a Qualifying Interest are the Saltee Islands SPA for the Gannet breeding colony. A tracking study of breeding Gannet on Great Saltee Island found Gannet foraging to the south and south-west of the islands (Wakefield, 2013), some of which overlaps with the Seas off Wexford SPA. Gannet also spent a significant amount of foraging time away from this SPA (NPWS, 2024d), however Gannet primarily forage out to sea and are very unlikely to forage in the vicinity of the proposed works, therefore there is no potential for the proposed works to cause noise or visual disturbance that would cause impacts to breeding colonies of Gannet. Kittiwake is a summer visitor and breeds in colonies located along the coast of Ireland, foraging over widespread marine waters throughout the year, with a general preference exhibited toward offshore areas during winter (Jessopp et al., 2018). The closest known breeding colony of this species to the proposed works is located at the Saltee Islands SPA c. 22km south of the proposed works. Therefore, there is no potential for this species to occur within the vicinity of the proposed works and therefore there is no potential for the proposed works to cause noise or visual disturbance that would cause impacts to this species. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	No

Qualifying Interest	Conservation Objective as per NPWS (2024d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Little Tern (*Sternula albifrons*) [A885]	*"To restore the favourable conservation condition of Little Tern at Seas off Wexford SPA"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Breeding population abundance: apparently occupied nests (AONs)"," Productivity rate: fledged young per breeding", "Distribution: breeding colonies", "Prey biomass available", "Barriers to connectivity",* and *"Disturbance at the breeding site".* <u>Airborne Noise & Visual Disturbance</u> Little tern nest on the shingle or rocky islands and beaches, including around Wexford Harbour. The mean-max foraging range for Little Tern, is 5km from their nesting site. The habitats in which terns nest are dynamic and vary year to year. It is possible, although highly unlikely that tern colonies could be within 5km of the proposed works. Given that this species primarily forages in waters close to breeding colonies, the area surrounding the proposed works does not provide optimal foraging habitat. However, out of an abundance of caution, airborne and visual disturbance to Little Tern during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> It is possible that Little tern could feed in proximity to the proposed works. Out of an abundance of caution, there is potential for underwater noise disturbance to little tern. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes

Table 3.6 Evaluation of the adverse effects of underwater noise disturbance from the proposed works in view of the Conservation Objectives of the Blackwater Bank SAC

Qualifying Interest	Conservation Objective as per the NPWS (2024a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Phocoena phocoena	*"To maintain the favourable conservation condition of Harbour*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Access to suitable habitat"* and *"Disturbance".*	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2024a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
(Harbour Porpoise) [1351]	*Porpoise in Blackwater Bank SAC"*	<u>Disturbance</u> Underwater noise has the potential to cause a range of impacts to marine life including to injury (hearing damage) and behavioural changes. Hearing damage injury to marine mammals is known as threshold shift can be either permanent (permanent threshold shift, PTS) or temporary (temporary threshold shift, TTS). Behavioural changes can include communication disruption, altered foraging behaviour or displacement from the area. Noise from anthropogenic sources have been measured to assess the levels which could cause injury to marine mammals. These are used as thresholds and are commonly used to assess the level of risk associated with noise producing activities in the marine environment. The lowest threshold for TTS in cetaceans is 196 dB and for pinnipeds it is 181 dB for non-pulsed sound. The sub-bottom profiler and cable percussion piling are the only elements of the proposed works that will emit sound at frequencies audible to marine mammals and at sound levels that exceed their TTS limits. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Sandbanks which are slightly covered by sea water all the time [1110]	*"To maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time in Blackwater Bank SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area", "Habitat distribution"* and *"Community distribution".* This European site is located in the Irish Sea, 17.1km east of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No

Table 3.7 Evaluation of the adverse effects of underwater noise disturbance from the proposed works in view of the Conservation Objectives of the Carnsore Point SAC

Qualifying Interest	Conservation Objective as per the NPWS (2024b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Phocoena phocoena **(Harbour Porpoise) [1351]**	*"To maintain the favourable conservation condition of Harbour Porpoise in Carnsore Point SAC."*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Access to suitable habitat"* and *"Disturbance".* <u>Disturbance</u> Underwater noise has the potential to cause a range of impacts to marine life including to injury (hearing damage) and behavioural changes. Hearing damage injury to marine mammals is known as threshold shift can be either permanent (permanent threshold shift, PTS) or temporary (temporary threshold shift, TTS). Behavioural changes can include communication disruption, altered foraging behaviour or displacement from the area. Noise from anthropogenic sources have been measured to assess the levels which could cause injury to marine mammals. These are used as thresholds and are commonly used to assess the level of risk associated with noise producing activities in the marine environment. The lowest threshold for TTS in cetaceans is 196 dB and for pinnipeds it is 181 dB for non-pulsed sound. The sub-bottom profiler and cable percussion piling are the only elements of the proposed works that will emit sound at frequencies audible to marine mammals and at sound levels that exceed their TTS limits. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Mudflats and sandflats not	*"To maintain the favourable conservation condition of*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area"* and *"Community distribution".*	No

Qualifying Interest	Conservation Objective as per the NPWS (2024b)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
covered by seawater at low tide [1140]	*Mudflats and sandflats not covered by seawater at low tide in Carnsore Point SAC"*	This European site is located in the Irish Sea, 17km southeast of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	
Reefs [1170]	*To maintain the favourable conservation condition of Reefs in Carnsore Point SAC*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat distribution", "Habitat area", "Community structure", "Community extent"* and *"Community structure".* This European site is located in the Irish Sea, 17km southeast of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No

Table 3.8 Evaluation of the adverse effects of underwater noise disturbance from the proposed works in view of the Conservation Objectives of the Saltee Islands SAC

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
***Halichoerus grypus* (Grey Seal) [1364]**	*"To maintain the favourable conservation condition of Grey Seal in Saltee Islands SAC".*	The Attributes of this Conservation Objective focuses on *"Access to suitable habitat", "Breeding behaviour", "Moulting behaviour", "Resting behaviour", "Population composition" and "Disturbance".* <u>Disturbance</u> Underwater noise has the potential to cause a range of impacts to marine life including to injury (hearing damage) and behavioural changes. Hearing damage injury to marine mammals is known as threshold shift can be either permanent (permanent threshold shift, PTS) or temporary (temporary threshold shift, TTS). Behavioural changes can include communication disruption, altered foraging behaviour or displacement from the area. Noise from anthropogenic sources have been measured to assess the levels which could	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		cause injury to marine mammals. These are used as thresholds and are commonly used to assess the level of risk associated with noise producing activities in the marine environment. The lowest threshold for TTS in cetaceans is 196 dB and for pinnipeds it is 181 dB for non-pulsed sound. The sub-bottom profiler and cable percussion piling are the only elements of the proposed works that will emit sound at frequencies audible to marine mammals and at sound levels that exceed their TTS limits. With regard to airborne noise, engines from vessels can produce noise levels typically 15-175Db@1m and at a frequency of 0.1-2 kHz. Seals are less sensitive to airborne noise because their auditory systems are anatomically adapted for underwater sound transmission, making them less efficient at detecting sound transmitted through air. However, out of an abundance of caution, airborne disturbance to Grey Seal cannot be excluded at this time. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Mudflats and sandflats not covered by seawater at low tide [1140]	*"To maintain the favourable conservation condition of Mudflats in Saltee Islands SAC".*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat area"* and *"Community extent".* This European site is located in the Irish Sea, 17.8km south of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Large shallow inlets and bays [1160]	*"To maintain the favourable conservation condition of Large shallow inlets and bays in the Saltee Islands SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Distribution"* and *"Community extent"*	No

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		This European site is located in the Irish Sea, 17.8km south of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	
Reefs [1170]	*"To maintain the favourable conservation condition of reefs in the Saltee Islands SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *""Distribution", "Habitat area", "Community structure", "Community extent" and "Community structure".* This European site is located in the Irish Sea, 17.8km south of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	*"To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in the Saltee Islands SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat length", "Habitat distribution", "Physical structure: functionality and hydrological regime", "Vegetation structure: zonation", "Vegetation structure: vegetation height", "Vegetation composition: typical species and sub-communities", "Vegetation composition: negative indicator species" and "Vegetation composition: bracken and woody species"* This European site is located in the Irish Sea, 17.8km south of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Submerged or partially submerged sea caves [8330]	*"To maintain the favourable conservation condition of* Submerged or partially submerged sea caves *of the Atlantic and Baltic coasts in the Saltee Islands SAC"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Distribution"* and *"Community Structure"* This European site is located in the Irish Sea, 17.8km south of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No

Table 3.9 Evaluation of the likely effects of the proposed works in view of the Conservation Objectives of Saltee Islands SPA [004002].

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Lesser Black-backed Gull (*Larus fuscus*) [A183]	*"To maintain the favourable conservation condition of Lesser Black-backed Gull in the Saltee Islands SPA"*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Breeding population abundance: apparently occupied nests (AONs), Productivity rate, Distribution: breeding colonies, Prey biomass available, Barriers to connectivity and Disturbance at the breeding site".* <u>Airborne Noise & Visual Disturbance</u> However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	Yes
Guillemot (*Uria aalge*) [A199]	*"To maintain the favourable*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Breeding population abundance: apparently occupied nests (AONs), Productivity rate,*	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
	conservation condition of Guillemot in the Saltee Islands SPA"	*Distribution: breeding colonies, Prey biomass available, Barriers to connectivity and Disturbance at the breeding site".* <u>Airborne Noise & Visual Disturbance</u> However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Razorbill (*Alca torda*) [A200]	*"To maintain the favourable conservation condition of*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Breeding population abundance: individual adult, Productivity rate, Distribution: breeding colonies, Prey biomass available, Barriers to connectivity, Disturbance at the breeding site* and *Disturbance at marine areas immediately adjacent to the colony".*	Yes

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
	Razorbill in the Saltee Islands SPA"	<u>Airborne Noise & Visual Disturbance</u> However, considering that the proposed works will take place over a short period of time and in proximity to the existing N11 and the R730, there is a higher level of ambient noise and visual cues due to the road traffic along and over the estuary and the area that would be impacted by noise will be within a small around the vessels required for the proposed works. Furthermore, any birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads, the heritage park and shipping traffic downstream in Wexford Harbour. However, out of an abundance of caution, acoustic-related impacts to breeding seabirds as a result of airborne noise during the proposed works cannot be ruled out at this stage. <u>Underwater Noise</u> Although research into the underwater hearing abilities in diving birds is limited, documented hearing thresholds for diving species such as Cormorant, suggests the use of auditory cues for foraging and/or orientation, and that Cormorant, and possibly other species which perform long dives, are sensitive to underwater sound (Hartley Anderson Ltd, 2020). Therefore, these species have the potential to be impacted by underwater noise as a result of the proposed works. <u>Water Quality</u> The proposed works which involve disturbance to the riverbed, and the presence of vessels in the River Slaney have the potential to lead to water quality impacts. This could lead to adverse effects.	
Herring Gull (*Larus argentatus*) [A184]	*"To maintain the favourable conservation condition of*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*" and "*Disturbance at the breeding site*".	No

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
	Herring Gull in the Saltee Islands SPA"	This European site is located in the Irish Sea, 22.4km south of the proposed works. The mean foraging range of this species is 16km (Woodward et al., 2019). Given that the birds will preferentially forage in the areas surrounding the colony, very few individuals from breeding colonies are likely to occur within close proximity of the proposed works. .	
Kittiwake (*Rissa tridactyla*) [A188]	*"To maintain the favourable conservation condition of Kittiwake in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*" and "*Disturbance at the breeding site*". This European site is located in the Irish Sea, 22.4km south of the proposed works. These species do not regularly occur in the area of the proposed works. These species preferentially forage in open waters. Given the limited availability of suitable habitat in proximity to the proposed works and the widespread availability of more suitable habitat within this European site, there is no foreseeable disturbance impacts to this species as a result of the proposed works due to the low-likelihood of their presence in the vicinity of the proposed works. In the unlikely event that any individuals are within disturbance distance of the proposed works during either the construction or operational phases, they will have the availability to move away from the area as their ecological passages will not be obstructed. <u>Water Quality</u> There is also a potential risk of suspending contaminants from the sediment during sampling which could lead to heavy metals or other contaminants entering the food chain. However, given the small volume of sediment involved, the dilution capacity of the Slaney Estuary and Wexford Harbour, and the distance between the proposed works and this site, this risk is negligible.	No
Puffin (*Fratercula arctica*) [A204]	*"To maintain the favourable conservation condition of Puffin in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*", "*Disturbance at the breeding site*", "*Disturbance at marine areas immediately adjacent to the colony*" and "*Occurrence of mammalian predators*". This European site is located in the Irish Sea, 22.4km south of the proposed works. This species does not regularly occur in the area of the proposed works. These species preferentially forage in open waters. Given the limited availability of suitable habitat in proximity to the proposed works and	No

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		the widespread availability of more suitable habitat within this European site, there is no foreseeable disturbance impacts to this species as a result of the proposed works due to the low-likelihood of their presence in the vicinity of the proposed works. In the unlikely event that any individuals are within disturbance distance of the proposed works during either the construction or operational phases, they will have the availability to move away from the area as their ecological passages will not be obstructed.	
Fulmar (*Fulmarus glacialis*) [A009]	*"To maintain the favourable conservation condition of Fulmar in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*", "*Disturbance at the breeding site*" and "*Disturbance at marine areas immediately adjacent to the colony*". This European site is located in the Irish Sea, 22.4km south of the proposed works. This species does not regularly occur in the area of the proposed works. These species preferentially forage in open waters. Given the limited availability of suitable habitat in proximity to the proposed works and the widespread availability of more suitable habitat within this European site, there is no foreseeable disturbance impacts to this species as a result of the proposed works due to the low-likelihood of their presence in the vicinity of the proposed works. In the unlikely event that any individuals are within disturbance distance of the proposed works during either the construction or operational phases, they will have the availability to move away from the area as their ecological passages will not be obstructed.	No
Gannet (*Morus bassanus*) [A016]	*"To maintain the favourable conservation condition of Gannet in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*", "*Disturbance at the breeding site*" and "*Disturbance at marine areas immediately adjacent to the colony*". This European site is located in the Irish Sea, 22.4km south of the proposed works. These species do not regularly occur in the area of the proposed works. These species preferentially forage in open waters. Given the limited availability of suitable habitat in proximity to the proposed works and the widespread availability of more suitable habitat within this European site, there is no foreseeable disturbance impacts to this species as a result of the proposed works due to the low-likelihood of their presence in the vicinity of the proposed works. In the unlikely event that any individuals are within disturbance distance of the proposed works during either the construction or operational	No

Qualifying Interest	Conservation Objective as per the NPWS (2011a)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		phases, they will have the availability to move away from the area as their ecological passages will not be obstructed.	
Cormorant (*Phalacrocorax carbo*) [A017]	*"To maintain the favourable conservation condition of Cormorant in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*" and "*Disturbance at the breeding site*". This European site is located in the Irish Sea, 22.4km south of the proposed works. The mean foraging range of this species is 7km (Woodward et al., 2019). Given that the birds will preferentially forage in the areas surrounding the colony, very few individuals from breeding colonies are likely to occur within close proximity of the proposed works.	No
Shag (*Phalacrocorax aristotelis*) [A018]	*"To maintain the favourable conservation condition of Shag in the Saltee Islands SPA"*	The Attributes of this Conservation Objective focuses on "*Breeding population abundance: apparently occupied sites (AONs)*", "*Productivity rate*", "*Distribution: breeding colonies*", "*Prey biomass available*", "*Barriers to connectivity*" and "*Disturbance at the breeding site*". This European site is located in the Irish Sea, 22.4km south of the proposed works. While the mean foraging range of this species is 120km (Woodward et al., 2019). Given that the birds will preferentially forage in the areas surrounding the colony, very few individuals from breeding colonies are likely to occur within close proximity of the proposed works.	No

Table 3.10 Evaluation of the adverse effects of underwater noise disturbance from the proposed works in view of the Conservation Objectives of the Hook Head SAC.

Qualifying Interest	Conservation Objective as per the NPWS (2025d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Harbour Porpoise (*Phocoena phocoena*) [1351]	*"To maintain the favourable conservation condition of Harbour Porpoise in Hook Head SAC".*	The Attributes of these Conservation Objectives focus on *"Access to suitable habitat" and "Disturbance".* Underwater noise has the potential to cause a range of impacts to marine life including to injury (hearing damage) and behavioural changes. Hearing damage injury to marine mammals is known as threshold shift can be either permanent (permanent threshold shift,	Yes
Bottlenose Dolphin	*"To maintain the favourable conservation condition*		Yes

Qualifying Interest	Conservation Objective as per the NPWS (2025d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
(*Tursiops truncatus*) [1349]	*Bottlenose Dolphin in Hook Head SAC".*	PTS) or temporary (temporary threshold shift, TTS). Behavioural changes can include communication disruption, altered foraging behaviour or displacement from the area. Noise from anthropogenic sources have been measured to assess the levels which could cause injury to marine mammals. These are used as thresholds and are commonly used to assess the level of risk associated with noise producing activities in the marine environment. The lowest threshold for TTS in cetaceans is 196 dB and for pinnipeds it is 181 dB for non-pulsed sound. The sub-bottom profiler and cable percussion piling are the only elements of the proposed works that will emit sound at frequencies audible to marine mammals and at sound levels that exceed their TTS limits.	
Large shallow inlets and bays [1160]	*"To maintain the favourable conservation condition Large shallow inlets and bays in Hook Head SAC".*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Distribution"* and *"Community extent".* This habitat is located in the Irish Sea, approximately 24.1km southwest of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Reefs [1170]	*"To maintain the favourable conservation condition reefs in Hook Head SAC".*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *""Distribution", "Habitat area", "Community structure", "Community extent" and "Community structure".* This habitat is located in the Irish Sea, approximately 24.1km southwest of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	No
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	*"To maintain the favourable conservation condition Vegetated sea cliffs of the Atlantic and Baltic coasts in Hook Head SAC".*	The Attributes of the Conservation Objectives for this Qualifying Interest focus on *"Habitat length", "Habitat distribution", "Physical structure: functionality and hydrological regime", "Vegetation structure: zonation", "Vegetation structure: vegetation height", "Vegetation composition: typical species and sub-communities", "Vegetation composition: negative indicator species" and "Vegetation composition: bracken and woody species".*	No

Qualifying Interest	Conservation Objective as per the NPWS (2025d)	Does the proposed works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
		This habitat is located on sea cliffs located approximately 24.1km southwest of the proposed works. Considering the nature and scale of the proposed works, and the distance between the proposed works and this site, there are no pathways for impact to occur between the proposed works and this Qualifying Interest.	

3.3 Summary of Adverse Effects

In Section 3.1, it was established that nine No. European sites, namely the Blackwater Bank SAC, the Carnsore Point SAC, the Saltee Islands SAC, the Hook Head SAC, the Slaney River Valley SAC, the Wexford Harbour and Slobs SPA, the Seas off Wexford SPA, The Raven SPA and the Saltee Islands SPA occur within the Zone of Influence for the proposed works and that there are pathways for impacts between the proposed works and these European sites. There are no pathways for impacts between the proposed works and any other European sites.

In Section 3.2, it was established, in the absence of appropriate mitigation, interruptions or delays in achieving certain Conservation Objectives for these sites, i.e. adverse effects on the integrity of these sites, as a result of the proposed works, cannot be ruled out. A summary of the Qualifying Interests adversely affected is provided in Table 3.11.

Table 3.11 Summary of the European sites and their Qualifying Interests for which, in view of their Conservation Objectives, adverse effects cannot be ruled out at this stage.

European sites [Site code]	Qualifying Interest
Slaney River Valley SAC [000781]	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (*Glauco Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Sea Lamprey (*Petromyzon marinus*) [1095] River Lamprey (*Lampetra fluviatilis*) [1099] Twaite Shad (*Alosa fallax fallax*) [1103] Salmon (*Salmo salar*) [1106] Otter (*Lutra lutra*) [1355] Harbour Seal (*Phoca vitulina*) [1365]
Blackwater Bank SAC [002953]	Harbour Porpoise (*Phocoena Phocoena*) [1351]
Carnsore Point SAC [002269]	Harbour Porpoise (*Phocoena Phocoena*) [1351]
Hook Head SAC [000764]	Common Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise (*Phocoena Phocoena*) [1351]
Saltee Islands SAC [000707]	Grey Seal (*Halichoerus grypus*) [1364]
Saltee Islands SPA [004002]	Lesser Black-backed Gull (*Larus fuscus*) [A183] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200]
Seas off Wexford SPA [004237]	Red-throated Diver (*Gavia stellata*) [A001] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Common Scoter (*Melanitta nigra*) [A065] Mediterranean Gull (*Larus melanocephalus*) [A176] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Lesser Black-backed Gull (*Larus fuscus*) [A183]

European sites [Site code]	Qualifying Interest
	Herring Gull (*Larus argentatus*) [A184] Roseate Tern (*Sterna dougallii*) [A192] Common Tern (*Sterna hirundo*) [A193] Arctic Tern (*Sterna paradisaea*) [A194] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Sandwich Tern (*Sterna sandvicensis*) [A863]
The Raven SPA [004019]	Red-throated Diver (*Gavia stellata*) [A001] Cormorant (*Phalacrocorax carbo*) [A017] Common Scoter (*Melanitta nigra*) [A065] Grey Plover (*Pluvialis squatarola*) [A141] Sanderling (*Calidris alba*) [A144] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]
Wexford Harbour and Slobs SPA [004076]	Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005] Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Bewick's Swan (*Cygnus columbianus bewickii*) [A037] Whooper Swan (*Cygnus cygnus*) [A038] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Scaup (*Aythya marila*) [A062] Goldeneye (*Bucephala clangula*) [A067] Red-breasted Merganser (*Mergus serrator*) [A069] Hen Harrier (*Circus cyaneus*) [A082] Coot (*Fulica atra*) [A125] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Lesser Black-backed Gull (*Larus fuscus*) [A183] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

European sites [Site code]	Qualifying Interest
	Wigeon (*Mareca penelope*) [A855] Little Tern (*Sternula albifrons*) [A885] Wetland and Waterbirds [A999]

4. ASSESSMENT OF ADVERSE EFFECTS

4.1 Approach to Assessment

In Section 3 of this NIS, adverse effects of the proposed works on the integrity of the Slaney River Valley SAC, the Wexford Harbour and Slobs SPA, the Raven SPA, the Seas off Wexford SPA, the Carnsore Point SAC, the Blackwater Bank SAC, the Saltee Islands SAC, the Saltee Islands SPA and the Hook Head SAC were identified. In accordance with European Commission guidance (EC, 2021), the identification of these effects was focussed on and limited to the Conservation Objectives of the sites concerned.

Section 4 provides a detailed analysis and evaluation of the adverse effects identified in Section 3 (as summarised in Section 3.4). In order to fully assess the implications of the proposed works for the European sites concerned, each of the adverse effects are evaluated with reference to the Attributes and Targets which define the Conservation Objectives of those sites.

4.2 Slaney River Valley SAC

4.2.1 Harbour Seal

The Conservation Objective for Harbour Seal in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat – The site-specific target attribute is "Species range within the site should not be restricted by artificial barriers to site use"
- Breeding Behaviour – The site-specific target attribute is "The breeding sites should be maintained in a natural condition"
- Moulting Behaviour – The site-specific target attribute is "The moult haul-out sites should be maintained in a natural condition"
- Resting Behaviour – The site-specific target attribute is "The moult haul-out sites should be maintained in a natural condition"
- Disturbance – The site-specific target attribute is "Human activities should occur at levels that do not adversely affect the harbour seal population"

Access to suitable habitat
This attribute relates specifically to permanent exclusion of access to suitable habitat. The proposed works are temporary in nature and will be carried out over a period of less than 3 months. The proposed works do not have the potential to cause permanent exclusion of Harbour Seal from part of their range, or to prevent access to suitable habitat within their range. Therefore, there will be no adverse effects to *Access to suitable habitat* arising from the proposed works.

Breeding Behaviour
Harbour seals are known to haul out on Tern Island and the exposed sand banks in Wexford Harbour. Harbour Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of breeding sites for Harbour Seal . Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any breeding areas for Harbour Seal there will be no adverse effects to *Breeding behaviour* arising from the proposed works.

Moulting Behaviour
The moult haul out sites for Harbour Seal in this European site are located in the Wexford Harbour Coastal Waterbody at least 6.4km southeast of the proposed works

locations. Harbour Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of moult haul-out sites for Harbour Seal. Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any moult haul-out areas for Harbour Seal there will be no adverse effects to *Moulting behaviour* arising from the proposed works.

Resting Behaviour
The resting haul out sites for Harbour Seal in this European site are located in the Wexford Harbour Coastal Waterbody at least 6.4km southeast of the proposed works locations. Harbour Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of resting haul-out sites for Harbour Seal. Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any resting haul-out sites for Harbour Seal there will be no adverse effects to *Resting behaviour* arising from the proposed works.

Disturbance
Harbour Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the level of impact of human activities on the Harbour Seal population. The ambient underwater noise levels in Wexford Harbour are not known but is expected to be dominated by environmental noise (e.g. tidal movement of water and sediment) and shipping traffic. Downstream of the proposed works in Wexford Harbour, noise due to recreational and fishing vessels transiting between Wexford town and the Irish Sea adds to the baseline underwater noise levels. Mussel fishing vessels are particularly common in Wexford Harbour with a large area of the harbour under active Aquaculture licences. The proposed works are within the Slaney Estuary. Given the mobile nature of Harbour Seal and that they have been previously recorded in the Slaney Estuary, there is potential for ex-situ underwater noise impacts. The proposed works may produce underwater noise that would be in excess of thresholds to cause PTS, TTS or a behavioural shift in Harbour Seal. Therefore, adverse effects on *Disturbance* arising from the proposed works cannot be excluded and mitigation is required.

4.2.2 Otter

The Conservation Objective for Otter in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Distribution – The site-specific target attribute is "No significant decline"
- Extent of terrestrial habitat – The site-specific target attribute is "No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds"
- Extent of marine habitat – The site-specific target attribute is "No significant decline. Area mapped and calculated as 534.7ha"
- Extent of freshwater (river) habitat – The site-specific target attribute is "No significant decline. Length mapped and calculated as 264.1km"
- Extent of freshwater (lake/lagoon) habitat – The site-specific target attribute is "No significant decline. Area mapped and calculated as 0.4ha"
- Couching sites and holts – The site-specific target attribute is "No significant decline"
- Fish biomass available – The site-specific target attribute is "No significant decline"

- Barriers to connectivity – The site-specific target attribute is "No significant increase"

Distribution
Potential impacts on Otter distribution from disturbance arising from the proposed works is outlined in the above section 4.2.1 for the Attribute "Access to suitable habitat", there is no potential for adverse effects to Otter distribution from the proposed works as Otter within the vicinity of the proposed works would not be permanently excluded from their distribution range. Therefore, there will be no adverse effects to *Distribution* arising from the proposed works.

Extent of terrestrial habitat
This attribute specifically relates to the reduction of otter habitat calculated as 64.7ha above high-water mark (HWM); 453.4ha along river banks/ around ponds. There will be no reduction or decline of terrestrial Otter habitat as part of the proposed works. Therefore, there will be no adverse effects to *Extent of terrestrial habitat* arising from the proposed works.

Extent of marine habitat
Potential impacts on Otter distribution from disturbance arising from the proposed works is outlined in the above section 4.2.1 for the Attribute "Access to suitable habitat", there is no potential for adverse effects to the extent of marine habitat from the proposed works considering the scale and nature of the proposed works which are located in a small section of the River Slaney. Therefore, there will be no adverse effects to *Extent of marine habitat* from the proposed works.

Extent of freshwater (river) habitat
The proposed works will be undertaken within the River Slaney and will not result in any direct reduction in the extent of freshwater habitat utilised by otter. However, ex-situ effects associated with accidental spillage of materials during the works could adversely affect water quality and, consequently, the extent of freshwater habitat used by otter. Therefore, adverse effects on the attribute *Extent of freshwater (river) habitat* arising from the proposed works cannot be excluded, and mitigation is required.

Extent of freshwater (lake/lagoon) habitat
The proposed works are not located within the vicinity of any lake or lagoon habitat utilized by Otter. Therefore, there will be no adverse effects to *Extent of freshwater (lake/lagoon) habitat* from the proposed works.

Couching sites and holts
A live Otter was recorded during the wintering bird surveys on the 7th March 2024 under Ferrycarrig Bridge and on the 4th December 2025 in the River Slaney, upstream of the proposed environmental survey locations. A targeted Otter survey was undertaken along the southern banks of the Slaney River on the 4th December 2025. No evidence of Otter resting places or signs of territory (e.g. holts, couches, spraints), other than the live Otter, was recorded during any survey undertaken for the proposed works or the proposed Irish National Heritage Park project. Given this survey is still valid in accordance with CIEEM (2019), there will be no adverse effects to *Couching sites and holts* from the proposed works.

Fish biomass available
Fish species, particularly salmonids and eels, form the majority of the diet of European Otter in Ireland (Chanin, 2003; Bailey & Rochford, 2006; Reid et al., 2013). The diet of otters is, however, highly adaptable and varies considerably between habitats (Reid et al., 2013). The diets of otters in both freshwater and coastal habitats have been studied

extensively (Chanin, 2003). While the feeding habits of otters in estuaries are less well-known, the importance of salmonids, eels and crustaceans, e.g., White clawed Crayfish (*Austropotamobius pallipes*), in freshwater habitats suggests that migratory fishes, i.e., Atlantic Salmon, European Eel, Sea Lamprey, River Lamprey and Twaite Shad, when available, are important for otters in estuarine habitats. Other fish species found in estuaries, e.g., European Smelt (*Osmerus eperlanus*), rocklings (*Lotidae*) and wrasses (*Lubrus spp*.), and invertebrates, e.g., Shore Crab (*Carcinus maenas*), are likely to be of importance outside of these periods.

While the effects of the proposed works are considered unlikely to significantly reduce the total fish biomass available to otters, the scale of this effect cannot be quantified and, thus, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on prey availability for otters.

Barriers to connectivity

Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh & O'Neill, 2010). Otter within the area, feed in the wider Wexford Harbour in both terrestrial and aquatic habitat. Otter are likely to be in the River Slaney during the proposed works and can detect underwater frequencies between 1 and 14 kHz (Smith & Jones, 2024). Otter TTS onset has been recorded as 226 dB SPL (Southall et al., 2019). The Sub-Bottom Profiler is within the hearing range for Otter, but the sound output is below the noise levels that could cause injury to Otter (Southall, et al., 2019). Nevertheless, there is potential for Otter to be impacted by underwater noise as a result of the proposed works.

While the effects of the proposed works are considered unlikely to significantly reduce barriers to connectivity for otter, the scale of this effect cannot be quantified and, thus, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on barriers to connectivity for otters.

4.2.3 Estuaries

The Conservation Objective for Estuaries in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Habitat area – The site-specific target attribute is "The permanent habitat area is stable or increasing, subject to natural processes."
- Community distribution – The site-specific target attribute is "Community types should be maintained in, or restored to, a natural condition: Mixed sediment community complex; Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex"

Habitat area

The extents and distributions of these Annex I habitats in the Slaney River Valley SAC are mapped in the Conservation Objectives supporting document for marine Qualifying Interests (NPWS, 2011) and in Map 3 and 4 of the Conservation Objectives themselves (NPWS, 2026). The intertidal and subtidal areas adjacent to the proposed works are mapped as Annex I 'Estuaries'. While the intertidal mud and sandflats in the vicinity of proposed works are not mapped as the corresponding Annex I habitat in NPWS (2011& 2026), they are treated as such for the purpose of this assessment. While these Annex I habitats are located immediately adjacent to the proposed works, they do not fall within its footprint. The Slaney River is hydrologically connected to the proposed

works, temporary physical habitat disturbance from the borehole, grab samples and the jack up barge have the potential to adversely affect the conservation objectives of this Qualifying Interest.

However, considering the nature and scale of the proposed works and that these works will not be carried out in a permanent manner that would affect the integrity of the stability of this attribute there is no potential for adverse effects.

Community distribution
The quantity of samples to be taken from the river Slaney is 50L. This is not considered to of a significant level to which, for this attribute, would be adversely affected in achieving its conservation objectives.

However, in the abundance of caution whereby the accidental spillage of material during the works could result in negative water quality effects. This in turn could adversely affect the distribution of community complexes of this Qualifying Interest.

While the effects of the proposed works are considered unlikely to significantly reduce community distribution, the scale of this effect cannot be quantified and, thus, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on community distribution within the SAC.

4.2.4 Mudflats and sandflats not covered by seawater at low tide

The Conservation Objective for Mudflats and sandflats not covered by seawater at low tide in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Habitat area – The site-specific target attribute is "The permanent habitat area is stable or increasing, subject to natural processes."
- Community distribution – The site-specific target attribute is "Community types should be maintained in a natural condition: Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex".

Habitat area
Potential impacts on Habitat area arising from the proposed works is outlined in the above section 4.2.3 for the attribute "Habitat area", there is no potential for adverse effects from the proposed works to cause permanent decline in the stability of this attribute habitat area in the Slaney River within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Habitat area* as a result of the proposed works.

Community Distribution
Potential impacts on Habitat area arising from the proposed works is outlined in the above section 4.2.3 for the attribute "Community distribution", there is potential for adverse effects from the proposed works to cause a potential decline for the attribute community distribution in the Slaney River within the immediate vicinity of the proposed works. Therefore, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on community distribution within the SAC.

4.2.5 Atlantic salt meadows

The Conservation Objective for Atlantic Salt Meadows in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Habitat area – The site-specific target attribute is "Area stable or increasing, subject to natural processes, including erosion and succession"
- Habitat distribution – The site-specific target attribute is "No decline, subject to natural processes"
- Physical structure: hydrology – The site-specific target attribute is "Natural hydrology and processes of erosion and succession intact, no disturbance to creek and pan structure, as compared to baseline data"
- Occurrence of human disturbance: disturbed ground – The site-specific target attribute is "Less than 5% disturbed ground at 75% of stops or more"
- Occurrence of human disturbance: signs of negative activities (e.g. infilling, reclamation, turf cutting, pollution) – The site-specific target attribute is "None recorded"
- Vegetation structure: zonation – The site-specific target attribute is "Adequate number of zones present, depending on geographical type of saltmarsh"
- Vegetation structure: spatial transitions – The site-specific target attribute is "No loss of natural transitions relative to baseline"
- Vegetation structure: plant height – The site-specific target attribute is "Standard deviation of median plant height in monitoring stops is greater than 5cm"
- Vegetation composition: typical species (positive indicators) – The site-specific target attribute is "Minimum of 12 typical species recorded across all plots"
- Vegetation composition: negative indicator species – The site-specific target attribute is "Percentage Spartina spp. cover, or other negative species, within 5m radius of stop less than/equal to baseline at 75% of stops or more"
- Vegetation composition: negative indicator species: presence of Spartina spp. within vicinity of habitat – The site-specific target attribute is "Not present where not recorded by baseline"
- Indicators of local distinctiveness: site-specific target features (including rare and notable species) – The site-specific target attribute is "No evidence of decline since designation".

Habitat area

As per the data available and reviewed through the NPWS Saltmarsh Monitoring Project 2006-2008 (2012), this habitat type is 196m upstream and 334m downstream of the proposed works. This habitat type is not within the immediate footprint of the proposed works. Considering the nature and scale of the proposed works there will be no permanent decline to this attribute as a result of the proposed works. Works undertaken will be temporary and short-term.

Furthermore, potential impacts on Habitat area arising from the proposed works is outlined in the above section 4.2.3 for the attribute "Habitat area", there is no potential for adverse effects from the proposed works to cause permanent decline in the stability of this attribute habitat area in the Slaney River within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Habitat area* as a result of the proposed works.

Habitat distribution
Potential impacts on Habitat distribution arising from the proposed works is outlined in the above for the attribute "Habitat area", there is no potential for adverse effects from the proposed works to cause permanent decline for the natural processes of this attribute habitat distribution in the Slaney River within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Habitat distribution* as a result of the proposed works.

Physical structure: sediment supply
As detailed above, the proposed works are in close proximity to saltmarsh habitats but will not result in any physical changes or in alterations to these habitats which may result in a change to the natural circulation of sediments and organic matter, without any physical obstructions to this habitat.

However, ex-situ effects associated with accidental spillage of materials during the works could adversely affect water quality and, consequently, leading to changes in the physical structure. Therefore, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on Physical structure: sediment supply.

Physical structure: flooding regime
As detailed above, the proposed works are in close proximity to saltmarsh habitats but will not result in any physical changes or in alterations to these habitats which could result in a change in flooding regime of this habitat. Therefore, there will be no adverse effects to *Physical structure: flooding regime* as a result of the proposed works.

Physical structure: creeks and pans
As detailed above, the proposed works are in close proximity to saltmarsh habitats but will not result in any physical changes or in alterations to these habitats which could result in a change in flooding regime of this habitat. Therefore, there will be no adverse effects to *Physical structure: creeks and pans* as a result of the proposed works.

Vegetation structure: zonation
As detailed above, the proposed works are in close proximity to saltmarsh habitats but will not result in any physical changes or in alterations to these habitats which may result in a change to the natural circulation of sediments and organic matter, without any physical obstructions to this habitat.

However, ex-situ effects associated with accidental spillage of materials during the works could adversely affect water quality and, consequently, leading to changes in the physical structure. Therefore, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on Vegetation structure: zonation.

4.2.6 Salmon

The Conservation Objective for Salmon, in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of this Conservation Objective are summarized as follows:

- Distribution: extent of anadromy — 100% of river channels down to second order accessible from estuary
- Adult spawning fish — Conservation limit (CL) for each system consistently exceeded

- 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 redds — No decline in number and distribution of spawning redds due to anthropogenic causes
- Water quality — At least Q4 at all sites sampled by EPA

Distribution: extent of anadromy
The specific target of this attribute is 100% of river channels are accessible. There will be no physical barriers introduced as a result of the proposed works. As salmon generally migrate nocturnally their migration routes will not be altered by the proposed works. However, a precautionary threshold of 186dB SEL has been adopted for this assessment based on information in Popper et al. (2014).

Based on the sound frequencies that will be emitted during the proposed works, as listed in Table 2.7, and the hearing ranges of the species described above, there is a potential impact to salmon in the downstream extent of the River Slaney. Therefore, in accordance with the Precautionary Principle, it is considered to be potentially significant. Mitigation is, therefore, required to prevent any adverse effect on the attribute *Distribution: extent of anadromy*.

Adult spawning fish
The proposed works will be undertaken within a small section of the River Slaney in which bathymetry survey activities, cable percussion and rotary core boreholes will be undertaken. Ex-situ effects associated with accidental spillage of materials during the works could adversely affect water quality and, consequently, this has the potential to negatively impact the health of salmon via the reduction of water quality. This in turn may negatively impact the health of adult spawning Salmon, reducing their reproductive success and/or resulting in their mortality. Therefore, adverse effects may arise as a result of the proposed works and mitigation is required.

Salmon fry abundance
Potential impacts on Salmon fry abundance as a result of the proposed works is outlined in the above attribute "Adult spawning fish", there is potential for adverse effects to salmon fry abundance from water quality impacts arising from the proposed works Therefore, adverse effects may arise as a result of the proposed works and mitigation is required.

Out-migrating smolt abundance
Potential impacts on Out-migrating smolt abundance as a result of the proposed works is outlined in the above attribute "Adult spawning fish", there is potential for adverse effects to Out-migrating smolt abundance from water quality impacts arising from the proposed works Therefore, adverse effects may arise as a result of the proposed works and mitigation is required.

Number and distribution of redds
Potential impacts on Number and distribution of redds as a result of the proposed works is outlined in the above attribute "Adult spawning fish", there is potential for adverse effects to Number and distribution of redds from water quality impacts arising from the proposed works Therefore, adverse effects may arise as a result of the proposed works and mitigation is required.

Water quality
Potential impacts on Water quality as a result of the proposed works is outlined in the above attribute "Adult spawning fish", there is potential for adverse effects to Water Quality from accidental spillage of materials during the works Therefore, adverse effects may arise as a result of the proposed works and mitigation is required.

4.2.7 Lamprey Species

The Conservation Objective for Lamprey species, in the Slaney River Valley SAC, are shown in Table 3.2 above. The Attributes of these Conservation Objective are summarized as follows:

Sea Lamprey/River Lamprey

- Distribution: extent of anadromy – The site-specific target attribute is "Greater than 75% of main stem length of rivers accessible from estuary"
- Population structure of juveniles – The site-specific target attribute is "At least three age/size groups present"
- Juvenile density in fine sediment – The site-specific target attribute is "Juvenile density at least 1/m²"
- Extent and distribution of spawning habitat – The site-specific target attribute is "No decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers"
- Availability of juvenile habitat – The site-specific target attribute is "More than 50% of sample sites positive"

Distribution: extent of anadromy
Potential impacts on Distribution: extent of anadromy arising from the proposed works is outlined in the above section 4.2.6 for the attribute "Distribution: extent of anadromy", there is potential for adverse effects from the proposed works to cause temporary effects for the conservation objectives for this attribute in the Slaney River within the immediate vicinity of the proposed works. Therefore, adverse effects cannot be excluded and mitigation is required.

Population structure of juveniles
The levels of underwater noise disturbance predicted to arise from the proposed works, have the potential to form a temporary barrier to the migration of Sea Lamprey and River Lamprey. therefore, will be temporarily affected by underwater noise.

Similarly, works undertaken within the River Slaney will be temporary to be undertaken over a three-month period. This is not predicted to significantly affect the population structure of juveniles. However, as discussed in the above section 4.2.6 for the attribute Adult spawning fish, water quality impacts cannot be quantified for which adverse effects cannot be excluded thus mitigation is required.

Juvenile density in fine sediment
Potential impacts on Juvenile density in fine sediment: arising from the proposed works is outlined in the above section 4.2.6 for the attribute "Distribution: extent of anadromy", whereby underwater noise disturbance may result in the temporary ex-situ disturbance of these species within the immediate vicinity of the proposed works. Therefore, adverse effects cannot be excluded and mitigation is required.

Extent and distribution of spawning habitat
The proposed works are in a tidal section of the River Slaney, therefore there is no potential for the works to reduce the area and occurrence of spawning habitat, which

occurs exclusively in fresh water. Therefore, there will be no adverse effects to *Physical structure: creeks and pans* as a result of the proposed works.

Availability of juvenile habitat
The proposed works are in a tidal section of the River Slaney therefore, there is no potential for the works to reduce the availability of juvenile habitat, which occurs exclusively in fresh water. Therefore, there will be no adverse effects to *Availability of juvenile habitat* as a result of the proposed works.

4.3 Wexford Harbour and Slobs SPA

This site is designated for wintering waterbird species, wintering Hen Harrier, breeding Little Tern and supporting wetland habitat.

4.3.1 Wintering Waterbird Species

The wintering waterbird species for which this site is designated are:

- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Bewick's Swan (*Cygnus columbianus bewickii*) [A037]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Common Scoter (*Melanitta nigra*) [A065]
- Coot (*Fulica atra*) [A125]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Curlew (*Numenius arquata*) [A160]
- Dunlin (*Calidris alpina*) [A149]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Goldeneye (*Bucephala clangu*la) [A067]
- Great Crested Grebe (*Podiceps cristatus*) [A005]
- Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]
- Grey Heron (*Ardea cinerea*) [A028]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Knot (*Calidris canutus*) [A143]
- Lapwing (*Vanellus vanellus*) [A142]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Little Grebe (*Tachybaptus rufic*ollis) [A004]
- Mallard (*Anas platyrhynchos*) [A053]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Pintail (*Anas acuta*) [A054]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Redshank (*Tringa totanus*) [A162]
- Sanderling (*Calidris alba*) [A144]
- Scaup (*Aythya marila*) [A062]
- Shelduck (*Tadorna tadorna*) [A048]
- Teal (*Anas crecca*) [A052]
- Whooper Swan (*Cygnus cygnus*) [A038]
- Wigeon (*Mareca penelope*) [A855]

The Attributes of wintering bird species are:

- Population Trend - The site-specific target is "Long term population trend stable or increasing"

- Distribution - The site-specific target is "no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

Population Trend
The proposed works are temporary in nature and will be carried out over a period of less than 3 months within a small tidal section of the River Slaney. The Qualifying Interest wintering bird species have the potential to occur in proximity to the works. Wintering bird surveys undertaken for the proposed INHP project between October 2020 and April 2021 and between October 2023 and April 2024 recorded 13 of the 30 Qualifying Interest species associated with Wexford Harbour and Slobs SPA. Peak counts of wintering bird species recorded within the survey area are presented in Section 2.5. Given the short-term and localised nature of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised. In this context, and taking account of the wintering bird survey results, disturbance arising from the proposed works is not expected to adversely affect the stability of the long-term population trends of the relevant Qualifying Interest species.

Therefore, the proposed works are not predicted to adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Distribution
Visual, underwater- and airborne noise disturbance associated with vessel and barge operations; survey activities and personnel on-site may result in temporary disturbance to Qualifying Interests within the SPA. Several of the Qualifying Interests recorded during the wintering bird surveys are considered to have a moderate to high sensitivity to disturbance and may temporarily move away from the works area in response to these activities. While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within the SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

4.3.2 Hen Harrier

The Attributes for this Conservation Objective are:

- Roost attendance: Individual hen harriers – The site-specific target is "No significant decline"
- Suitable foraging habitat - The site-specific target is "No significant decline"
- Roost site: Condition - The site-specific target is "The roost site should be maintained in a suitable condition"
- Disturbance at the roost site - The site-specific target is "Human activities should occur at levels that do not adversely affect the Hen Harrier winter roost population"

Roost attendance: Individual hen harriers
A survey to identify Hen Harrier roosts was conducted from one vantage point covering saltmarsh and reedbed habitats in the Slaney Estuary between October 2024 – March 2026. No Hen Harriers were recorded during any of the six evening roost surveys. However, given that the proposed works will take place in proximity to the existing N11 and the R730, there is a higher level of ambient noise due to the road traffic along and over the estuary and the area that would be impacted by noise is likely to be much less

than 316m. Furthermore, birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads and shipping traffic in Wexford Harbour downstream of the proposed works. Therefore, sources of noise from the construction or operation of the proposed works will have no impact on the tern colonies in the SPA.

Suitable foraging habitat

Potential impacts on Hen Harrier suitable foraging habitat from disturbance arising from the proposed works is outlined in the above section Attribute "Roost attendance: Individual hen harriers", there is no potential for noise disturbance from the proposed works to cause impacts to suitable foraging habitat as Hen Harriers within the vicinity of the proposed works would be habituated to the existing levels of disturbance. Therefore, there will be no adverse effects to *suitable foraging habitat* arising from the proposed works.

Roost site: Condition

A survey to identify Hen Harrier roosts was conducted from a single vantage point covering saltmarsh and reedbed habitats within the Slaney Estuary between October 2024 and March 2026. No Hen Harriers were recorded during any of the six evening roost surveys. However, given that the Conservation Objectives identify a Hen Harrier roost area of 14.1 ha, and in the absence of certainty regarding the precise location of roosting birds within this area, the possibility of Hen Harriers utilising habitats within the area of the proposed works cannot be discounted.

While the proposed works are considered unlikely to result in a significant reduction in roost site condition for Hen Harrier, the scale of any potential effect cannot be quantified with certainty. Therefore, in accordance with the Precautionary Principle, the potential for significant effects cannot be ruled out.

Accordingly, there is potential for a reduction in roost site condition to adversely affect the Conservation Objective for Hen Harrier in relation to the *Roost Site: Condition* attribute and, therefore, mitigation is required.

Disturbance at the roost site

The presence of humans and vessels working in the Lower Slaney Estuary may cause visual disturbance to Hen Harriers in the water or on the mudflats exposed at low tide. Disturbance due to visual stimuli may occur between 500-750m from the source for Hen Harriers (Cutts *et al.*, 2013). While this disturbance will be temporary and localised to the proposed works locations the scale of any potential effect cannot be quantified with certainty. Therefore, in accordance with the Precautionary Principle, the potential for significant effects cannot be ruled out.

4.3.3 Little Tern

The Attributes for this Conservation Objective are:

- Breeding population abundance apparently occupied nests (AONs) - The site-specific target is "No significant decline"
- Productivity rate fledged young per breeding pair - The site-specific target is "No significant decline"
- Distribution breeding colonies - The site-specific target is "No significant decline"
- Prey biomass available - The site-specific target is "No significant decline"
- Barriers to connectivity - The site-specific target is "No significant decline"

- Disturbance at the breeding site - The site-specific target is "Human activities should occur at levels that do not adversely affect the breeding little tern population"

Breeding population abundance: apparently occupied nests (AONs)
The proposed works have the potential to reduce water quality, and therefore impact fish and other prey species within the foraging ranges of Little Tern. While the effects of the proposed works are considered unlikely to significantly reduce the total fish biomass available to this Qualifying Interest, the scale of this effect cannot be quantified, and thus adverse effects cannot be excluded.

Productivity rate: fledged young per breeding pair
The proposed works have the potential to reduce water quality and therefore, impact fish and other prey species, within the foraging ranges of Little Tern thus potentially affecting the quantity, quality or frequency of food brought to nestlings. While the effects of the proposed works are considered unlikely to significantly reduce the total fish biomass available to tern species, the scale of this effect cannot be quantified and, thus, in accordance with the Precautionary Principle, it is considered to be potentially significant. Therefore, there is potential for a reduction in water quality to result in adverse effects to the Conservation Objective of Little Tern through impacts to the *Productivity rate* Attribute and therefore, mitigation is required.

Distribution: breeding colonies
Little Tern was not recorded during the wintering bird surveys that were conducted along the Slaney Estuary. However, given that the proposed works will take place in proximity to the existing N11 and the R730, there is a higher level of ambient noise due to the road traffic along and over the estuary and the area that would be impacted by noise is likely to be much less than 316m. Furthermore, birds utilising this area are also likely to have a level of habituation to sources of noise due to the close proximity of the existing roads and shipping traffic in Wexford Harbour downstream of the proposed works. Therefore, sources of noise from the construction or operation of the proposed works will have no impact on the tern colonies in the SPA.

Prey biomass available
The diets of Little Tern consist primarily of small fish which are caught by plunge-diving. They forage in freshwater and marine waters typically within 10 km of the nest-site / roost-site (Birdlife International, 2014). The site-specific target for Prey biomass available is *"no significant decline"* of prey.

The proposed works have the potential to reduce water quality and therefore, impact fish and other prey species, within the foraging ranges of Little Tern. While the effects of the proposed works are considered unlikely to significantly reduce the total fish biomass available to this Qualifying Interest, the scale of this effect cannot be quantified. Therefore, applying the precautionary principle, adverse effects cannot be excluded. The proposed works have potential to lead to changes in the *prey biomass available* attribute of Little Tern, and therefore, mitigation is required.

Barriers to connectivity
Little Terns associated with the SPA roosts, feed in the wider Wexford Harbour area. During the breeding season Little Tern can make extensive use of marine waters adjacent to their breeding colonies. Given that the proposed works are not located between any known roost sites and important feeding areas, the proposed works will not form a barrier between these areas or impact connectivity. The proposed works will be undertaken within a small section of the River Slaney and are temporary in

nature. As such, there will be no adverse effects to the *barriers to connectivity* attribute of these Qualifying Interest species arising from the proposed works.

Disturbance at the breeding site
Potential impacts arising, as a result of the proposed works, on the attribute Disturbance at the breeding site are discussed for the above attribute "Distribution: breeding colonies". Disturbance arising from the proposed works will not exceed those which are already present within the immediate area and therefore, breeding Little Tern in the area will likely be habituated to these levels of disturbance. Therefore, there will be no adverse effects to *Disturbance at breeding site* arising from the proposed works.

4.3.4 Wetlands

This habitat type is listed as a Qualifying Interest of the Wexford Harbour and Slobs SPA which are located within the immediate vicinity of the proposed works. The Conservation Objectives for this Qualifying Interest are shown in Table 3.3 above.

The attributes of this Conservation Objective as per the Wexford Harbour and Slobs SPA (NPWS, 2012) is *wetland habitat area.*

The works will involve the use of ADCP frames, jack-up barge operations, grab sampling and boreholes will directly disturb the riverbed, potentially resuspending sediment, displacing benthic fauna and altering estuarine habitat communities. Given the direct overlap with Estuaries [1130], the presence of Atlantic salt meadows [1330] along the southern boundary of the MUL area, likely adverse effects cannot be excluded.

4.4 Seas off Wexford SPA

4.4.1 Tern species

The Attributes of these Conservation Objectives are:

- Breeding population size – The site-specific target attribute is "Long term SPA population trend is stable or increasing"
- Spatial distribution – The site-specific target attribute is "Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population"
- Forage spatial distribution, extent, abundance and availability – The site-specific target attribute is "Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target"
- Disturbance across the site – The site-specific target attribute is "The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution"
- Barriers to connectivity – The site-specific target attribute is "The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA"

The Tern species that are a Qualifying Interest for this site are:

- Sandwich Tern (*Sterna sandvicensis*)
- Roseate Tern (*Sterna dougallii*)
- Common Tern (*Sterna hirundo*)

- Arctic Tern (*Sterna paradisaea*)

Breeding population size
Notable concentrations of tern species have been recorded within this SPA along the coast, particularly in the vicinity of Carne Beach. The SPA is located approximately 9.6 km east of the proposed works and, at this distance, any noise or visual disturbance arising from the proposed works will have substantially dissipated before reaching the breeding population associated with the coastal habitats at the mouth of the Slaney Estuary.
In addition, the proposed works area is influenced by existing sources of ambient noise, including traffic associated with the N11 and R730 and movements across the estuary. Consequently, the area over which disturbance effects may occur is likely to be considerably less than the precautionary disturbance range of 316 m.

Given the separation distance between the proposed works and the breeding areas used by tern species and taking into account the identified disturbance range for tern species of 100-300 m (Cutts *et al.*, 2013), there is no potential for adverse effects on breeding population size arising from the proposed works.

Spatial distribution
The proposed works will take place over a three-month period and will be localised to a small section of the River Slaney. While underwater noise disturbance is generally limited for diving species, ambient underwater noise levels within Wexford Harbour are not known. However, these are expected to be dominated by natural environmental noise, such as tidal movements of water and sediment, as well as shipping traffic. Downstream of the proposed works, recreational and fishing vessels transiting between Wexford Town and the Irish Sea contribute to baseline underwater noise levels. Mussel fishing vessels are particularly common within Wexford Harbour, with large areas of the harbour covered by active aquaculture licences.

Tern species can make extensive use of marine waters adjacent to their breeding colonies. However, the proposed works are not located between any known roosting sites or breeding colonies and important feeding areas. Given the localised nature of the works and their short duration, the proposed works will not affect the spatial distribution of tern species and will not adversely affect spatio-temporal patterns of habitat use within the area.

Therefore, there will be no adverse effects to the Spatial Distribution Attribute of these Qualifying Interest species arising from the proposed works.

Forage spatial distribution, extent, abundance and availability
Potential impacts on Tern species Forage Spatial Distribution from disturbance arising from the proposed works is outlined in the above section 4.3.3 for the Attribute "Prey biomass". There is potential for water quality impacts as a result of the proposed works and as they would not be quantifiable, in accordance with the precautionary principle adverse effects may arise therefore, mitigation is required.

Disturbance across the site
Potential impacts on Tern species Forage Spatial Distribution from disturbance arising from the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Tern colonies as the Terns would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Disturbance at breeding sites* arising from the proposed works.

Barriers to connectivity
Potential impacts on Tern species Barriers to connectivity arising from the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Tern colonies as the Terns would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. There will be no barriers as a result of the proposed works to marine waters ecologically connected to Tern colonies Therefore, there will be no adverse effects to *Barriers to connectivity* arising from the proposed works.

4.4.2 Gull species

The Conservation Objectives for Gull species in the Seas off Wexford SPA are shown in Table 3.5 above. The Attributes of these Conservation Objectives are summarized as follows:

- Breeding population size – The site-specific target attribute is "Long term SPA population trend is stable or increasing"
- Spatial distribution – The site-specific target attribute is "Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population"
- Forage spatial distribution, extent, abundance and availability – The site-specific target attribute is "Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target"
- Disturbance across the site – The site-specific target attribute is "The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution"
- Barriers to connectivity – The site-specific target attribute is "The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA"

The Gull species that are a Qualifying Interest for this site are:

- Mediterranean Gull (*Larus melanocephalus)*
- Black-headed Gull (*Chroicocephalus ridibundus*)
- Lesser Black-backed Gull (*Larus fuscus*)
- Herring Gull (*Larus argentatus*)

Breeding population size
Potential impacts on Gull species Breeding population size from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to Gull species as the Gulls would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Spatial distribution
Potential impacts on Gull species Conservation Objectives for Spatial distribution arising from the proposed works is outlined in Section 4.4.1 above for the Attributes *Spatial distribution*.

Forage spatial distribution, extent, abundance and availability
Potential impacts on Gull species Forage Spatial Distribution from disturbance arising as a result of the proposed works is outlined in the above section 4.3.3 for the Attribute "Prey biomass". There is potential for water quality impacts as a result of the proposed works and as they would not be quantifiable, in accordance with the precautionary principle adverse effects may arise therefore, mitigation is required.

Disturbance across the site
Potential impacts on Gull species Disturbance across the site from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Tern colonies as the Terns would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Disturbance at breeding sites* arising from the proposed works.

Barriers to connectivity
Potential impacts on Gull species Barriers to connectivity from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Tern colonies as the Terns would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Barriers to connectivity* arising from the proposed works.

4.4.3 Common Scoter

The Conservation Objectives for Common Scoter in the Seas off Wexford SPA are shown in Table 3.5 above. The Attributes of this Conservation Objective are summarized as follows:

- Non-breeding population size – The site-specific target attribute is "Long term SPA population trend is stable or increasing"
- Spatial distribution – The site-specific target attribute is "Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population"
- Forage spatial distribution, extent and abundance – The site-specific target attribute is "Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target"
- Disturbance across the site – The site-specific target attribute is "The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution"
- Barriers to connectivity – The site-specific target attribute is "The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA"

Non-breeding population size
Potential impacts on Common Scoter Non-breeding population size from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the

Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to Common Scoter as this species would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Spatial distribution
Potential impacts on Common Scoter Spatial distribution from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to Common Scoter as this species would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Forage spatial distribution, extent, abundance and availability
Potential impacts on Common Scoter Forage Spatial Distribution from disturbance arising as a result of the proposed works is outlined in the above section 4.3.3 for the Attribute "Prey biomass". There is potential for water quality impacts as a result of the proposed works and as they would not be quantifiable, in accordance with the precautionary principle adverse effects may arise therefore, mitigation is required.

Disturbance across the site
Potential impacts on Common Scoter Disturbance across the site from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Common scoter as this species would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Disturbance at breeding sites* arising from the proposed works.

Barriers to connectivity
Potential impacts on Common scoter Barriers to connectivity from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Common scoter as this species would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Barriers to connectivity* arising from the proposed works.

4.4.4 Breeding Birds

The Conservation Objectives for Breeding bird species in the Seas off Wexford SPA are shown in Table 3.5 above. The Attributes of these Conservation Objectives are summarized as follows:

- Breeding population size – The site-specific target attribute is "Long term SPA population trend is stable or increasing"
- Spatial distribution – The site-specific target attribute is "Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population"
- Forage spatial distribution, extent, abundance and availability – The site-specific target attribute is "Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target"
- Disturbance across the site – The site-specific target attribute is "The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution"
- Barriers to connectivity – The site-specific target attribute is "The number, location, shape and area of barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA"

The Breeding bird species that are a Qualifying Interest for this site are:

- Red-throated Diver (*Gavia stellata*) [A001]
- Guillemot (*Uria aalge*) [A199]
- Razorbill (*Alca torda*) [A200]

Breeding population size

Potential impacts on Breeding bird species Breeding population size from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to Breeding bird species as these birds would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Spatial distribution

Potential impacts on Breeding bird species arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Distribution". While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within and beyond this SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

Forage spatial distribution, extent, abundance and availability

Potential impacts on Breeding bird species Forage Spatial Distribution from disturbance arising as a result of the proposed works is outlined in the above section 4.3.3 for the Attribute "Prey biomass". There is potential for water quality impacts as a result of the proposed works and as they would not be quantifiable, in accordance with the precautionary principle adverse effects may arise therefore, mitigation is required.

Disturbance across the site
Potential impacts on Breeding bird species Disturbance across the site from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Breeding bird species as these birds would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Disturbance at breeding sites* arising from the proposed works.

Barriers to connectivity
Potential impacts on Breeding bird species Barriers to connectivity from disturbance arising as a result of the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Breeding bird species as these birds would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Therefore, there will be no adverse effects to *Barriers to connectivity* arising from the proposed works.

4.4.5 Cormorant

The Conservation Objective for Cormorant in the Seas off Wexford SPA is shown in Table 3.5 above. The Attributes of this Conservation Objective are summarised as follows:

- Population size – The site-specific target is "Long term SPA population trend is stable or increasing"
- Spatial distribution– The site-specific target is "Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population"
- Forage spatial distribution, extent, abundance and availability– The site-specific target is "Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target"
- Disturbance across the site– The site-specific target is "The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution"
- Barriers to connectivity– The site-specific target is "The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA"

Population size
Potential impacts on Cormorant from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population trend", there is no potential for noise disturbance from the proposed works to cause impacts to cormorant populations as the Cormorants would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. There will be no adverse effects to *Population size* arising from the proposed works.

Spatial distribution
Potential impacts on Cormorant from disturbance arising as a result of the proposed works is outlined in the above section 4.4.4 for the Attribute "Spatial distribution", there is no potential for noise disturbance from the proposed works to cause impacts to cormorant populations as the Cormorants would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. There will be no adverse effects to *Population size* arising from the proposed works.

Forage spatial distribution, extent, abundance and availability
Potential impacts on Cormorant Forage Spatial Distribution from disturbance arising from the proposed works is outlined in the above section 4.3.3 for the Attribute "Prey biomass". There is potential for water quality impacts as a result of the proposed works and as they would not be quantifiable, in accordance with the precautionary principle adverse effects may arise therefore, mitigation is required.

Disturbance across the site
Potential impacts on Cormorant from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Spatial distribution", there is no potential for noise disturbance from the proposed works to cause impacts to cormorant populations as the Cormorants would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. There will be no adverse effects to *Disturbance across the site* arising from the proposed works.

Barriers to connectivity
Potential impacts on Cormorant arising from the proposed works is outlined in the above section for the Attribute "Spatial Distribution", there is no potential for noise disturbance from the proposed works to cause impacts to Cormorant colonies as they would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. There will be no barriers as a result of the proposed works to marine waters ecologically connected to Cormorant colonies Therefore, there will be no adverse effects to *Barriers to connectivity* arising from the proposed works.

4.5 Carnsore Point SAC

4.5.1 Harbour Porpoise

The Conservation Objective for Harbour Porpoise in Carnsore Point SAC are shown in Table 3.7 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat – The site-specific target is "Species range within the site should not be restricted by artificial barriers to site use"
- Disturbance – The site-specific target is "Human activities should occur at levels that do not adversely affect the Harbour Porpoise community at the site"

Access to suitable habitat
This attribute relates specifically to *permanent* exclusion of access to suitable habitat. The proposed works are temporary in nature and will be carried out over a period of less than 3 months. Therefore, proposed works do not have the potential to cause permanent (or temporary) exclusion of Harbour Porpoise from part of its range, or to prevent access to suitable habitat within their range. There is no potential for adverse effects.

Disturbance
The closest designated sites for Harbour Porpoise are 20km east of the proposed works, therefore there is no potential for underwater noise from the proposed works to impact this species within the site, as sound would attenuate to below the thresholds to cause a behavioural response in this species, therefore there is no potential to in-situ impacts to Harbour Porpoise within any European site.

However, the proposed works may produce underwater noise that would be in excess of thresholds to cause a behavioural shift to Harbour Porpoise. However, in practice

this is considered highly unlikely due to the low likelihood that Harbour Porpoise would be present in the area of the proposed works and given that the noise produced by the works would rapidly attenuate to the ambient noise levels. The sub-bottom profiler also has the potential to exceed the behavioural response threshold level, were a Harbour Porpoise to swim underneath the vessel. Therefore, applying the precautionary principle, adverse effects cannot be excluded.

4.6 Blackwater Bank SAC

4.6.1 Harbour Porpoise

The Conservation Objective for Harbour Porpoise in the Blackwater Bank SAC, are shown in Table 3.6 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat - The site-specific target is "Species range within the site should not be restricted by artificial barriers to site use
- Disturbance – The site-specific target is "Human activities should occur at levels that do not adversely affect the Harbour Porpoise community at the site"

Access to Suitable Habitat
Harbour Porpoise, a Qualifying Interest of Blackwater Bank SAC, may occur within the wider zone of influence of the proposed works. The potential effects of the proposed works on Harbour Porpoise, including the potential for disturbance and temporary exclusion from suitable habitat, have been assessed in Section 4.5 above in relation to Carnsore Point SAC.

Blackwater Bank SAC is located c. 17.1 km east of the proposed works. Given this distance, any underwater noise generated during the proposed works will be substantially attenuated before reaching Blackwater Bank SAC and will be of a considerably lower magnitude than that assessed in the vicinity of the proposed works.

Furthermore, as concluded in Section 4.5, the proposed works are temporary in nature and will not result in the permanent or temporary exclusion of Harbour Porpoise from suitable habitat. Therefore, any mitigation which is effective in terms of avoiding adverse effects on Harbour porpoise in the Carnsore Point SAC will be more than adequate to eliminate such effects in the Blackwater Bank SAC.

Disturbance
The potential effects of underwater noise on Harbour Porpoise have been assessed in Section 4.5 above in relation to Carnsore Point SAC. While Blackwater Bank SAC is located c. 17.1 km east of the proposed works and any underwater noise reaching the site would be substantially attenuated, Harbour Porpoise are highly mobile and may forage over large areas. Therefore, applying the precautionary principle and as concluded for Carnsore Point SAC, adverse effects cannot be excluded.

Therefore, for the reasons outlined above and in Section 4.5, there is potential for adverse effects on the Conservation Objectives of Blackwater Bank SAC in relation to the attributes Access to Suitable Habitat or Disturbance.

4.7 The Raven SPA

4.7.1 Wintering bird species

The Conservation Objective for wintering birds in the Raven SPA is shown in Table 3.4 above. The Attributes of these Conservation Objectives are summarised as follows:

- Population Trend - The site-specific target is "Long term population trend stable or increasing"
- Distribution - The site-specific target is "no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation"

The wintering bird species Qualifying Interests for this site are:

- Red-throated Diver
- Cormorant
- Common Scoter

Population Trend

Potential impacts on wintering birds from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to these species as they would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Distribution

Potential impacts on wintering birds arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Distribution". While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within and beyond this SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

4.7.2 Grey Plover

The Conservation Objective for Grey Plover in the Raven SPA is shown in Table 3.4 above. The Attributes of this Conservation Objective are summarised as follows:

- Population Trend - The site-specific target is "Long term population trend stable or increasing"
- Distribution - The site-specific target is "no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation"

Population Trend
Potential impacts on Grey Plover from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to this species as they would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Distribution
Potential impacts on Grey Plover arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Distribution". While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within and beyond this SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

4.7.3 Sanderling

The Conservation Objective for Sanderling in the Raven SPA is shown in Table 3.4 above. The Attributes of this Conservation Objective are summarised as follows:

- Population Trend - The site-specific target is "Long term population trend stable or increasing"
- Distribution - The site-specific target is "no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation"

Population Trend
Potential impacts on Sanderling from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to this species as they would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Distribution
Potential impacts on Sanderling arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Distribution". While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within and beyond this SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of

certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

4.7.4 Greenland White-fronted Goose

The Conservation Objective for Greenland White-fronted Goose in the Raven SPA is shown in Table 3.4 above. The Attributes of this Conservation Objective are summarised as follows:

- Population Trend - The site-specific target is "Long term population trend stable or increasing"
- Distribution - The site-specific target is "no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation"

Population Trend
Potential impacts on Greenland White-fronted Goose from disturbance arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Population Trend", there is no potential for noise and visual disturbance from the proposed works to cause impacts to this species as they would be habituated to the existing levels of disturbance within the immediate vicinity of the proposed works. Given the nature and scale of the proposed works, together with the extensive availability of alternative suitable habitat within the SPA, any noise and visual disturbance effects would be temporary and localised.

Therefore, the proposed works will not adversely affect this attribute of the Conservation Objective and will not undermine the achievement of the Conservation Objective for the relevant Qualifying Interest species.

Distribution
Potential impacts on Greenland White-fronted Goose arising as a result of the proposed works is outlined in the above section 4.3.1 for the Attribute "Distribution". While any such disturbance impacts from the proposed works would be localised and temporary, given their short-term nature and the availability of extensive alternative foraging and roosting habitat within and beyond this SPA and the wider area, significant effects are not anticipated. However, in accordance with the precautionary principle and in the absence of certainty regarding the response of all individuals to the proposed works, adverse effects due to visual, underwater- and airborne noise disturbance cannot be excluded.

4.8 Saltee Islands SAC

4.8.1 Grey Seal

The Conservation Objective for Grey Seal in the Saltee Islands SAC, are shown in Table 3.8 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat – The site-specific target attribute is "Species range within the site should not be restricted by artificial barriers to site use"
- Breeding Behaviour – The site-specific target attribute is "The breeding sites should be maintained in a natural condition"
- Moulting Behaviour – The site-specific target attribute is "The moult haul-out sites should be maintained in a natural condition"

- Resting Behaviour – The site-specific target attribute is "The moult haul-out sites should be maintained in a natural condition"
- Population Composition – The site-specific target attribute is "The grey seal population occurring within this site should contain adult, juvenile and pup cohorts annually"
- Disturbance – The site-specific target attribute is "Human activities should occur at levels that do not adversely affect the grey seal population"

Access to suitable habitat
This attribute relates specifically to permanent exclusion of access to suitable habitat. The proposed works are temporary in nature and will be carried out over a period of less than 3 months. The proposed works do not have the potential to cause permanent exclusion of Grey Seal from part of their range, or to prevent access to suitable habitat within their range. Therefore, there will be no adverse effects to *Access to suitable habitat* arising from the proposed works.

Breeding Behaviour
Grey Seal are known to breed on both Little Saltee and Great Saltee. Grey Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of breeding sites for Grey Seal. Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any breeding areas for Grey Seal there will be no adverse effects to *Breeding behaviour* arising from the proposed works.

Moulting Behaviour
The moult haul out sites for Grey Seal in this European site are located at least 17.8km south of the proposed works locations. Grey Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of moult haul-out sites for Grey Seal. Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any moult haul-out areas for Grey Seal there will be no adverse effects to *Moulting behaviour* arising from the proposed works.

Resting Behaviour
The resting haul out sites for Grey Seal in this European site are located at least 17.8km south of the proposed works locations. Grey Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the maintenance of resting haul-out sites for Grey Seal. Given that the proposed works will be located within a small section of the River Slaney and will not be undertaken in any resting haul-out sites for Grey Seal there will be no adverse effects to *Resting behaviour* arising from the proposed works.

Population Composition
Grey Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the annual number of adult, juvenile and pup cohorts of Grey Seal within this European site. The ambient underwater noise levels in Wexford Harbour are not known but is expected to be dominated by environmental noise (e.g. tidal movement of water and sediment) and shipping traffic. Downstream of the proposed works in Wexford Harbour, noise due to recreational and fishing vessels transiting between Wexford town and the Irish Sea adds to the baseline underwater noise levels. Mussel fishing vessels are particularly common in Wexford Harbour with a large area of the harbour under active Aquaculture licences. The proposed works are within the Slaney Estuary. Given the mobile nature of Grey Seal and that they have been previously recorded in the Slaney Estuary, there is potential for ex-situ

underwater noise impacts. The proposed works may produce underwater noise that would be in excess of thresholds to cause PTS, TTS or a behavioural shift in Grey Seal. Ex-situ disturbance has the potential to result in cohort-specific disturbance within the population, thereby disrupting the *Population composition* in suitable aquatic and intertidal habitat for Grey Seal. Therefore, adverse effects to *Population composition* arising from the proposed works cannot be excluded and mitigation is required.

Disturbance
Grey Seal have been recorded along the River Slaney and in the Slaney Estuary. This attribute relates specifically to the level of impact of human activities on the Grey Seal population. The ambient underwater noise levels in Wexford Harbour are not known but is expected to be dominated by environmental noise (e.g. tidal movement of water and sediment) and shipping traffic. Downstream of the proposed works in Wexford Harbour, noise due to recreational and fishing vessels transiting between Wexford town and the Irish Sea adds to the baseline underwater noise levels. Mussel fishing vessels are particularly common in Wexford Harbour with a large area of the harbour under active Aquaculture licences. The proposed works are within the Slaney Estuary. Given the mobile nature of Grey Seal and that they have been previously recorded in the Slaney Estuary, there is potential for ex-situ underwater noise impacts. The proposed works may produce underwater noise that would be in excess of thresholds to cause PTS, TTS or a behavioural shift in Grey Seal. Therefore, adverse effects on Disturbance arising from the proposed works cannot be excluded and mitigation is required.

4.9 Saltee Islands SPA

4.9.1 Diving birds

The Conservation Objective for diving birds in the Saltee Islands SPA is shown in Table 3.9 above. The Attributes of this Conservation Objective are summarised as follows:

- Breeding population abundance: individual adult – The site-specific target attribute is "No significant decline"
- Productivity rate – The site-specific target attribute is "No significant decline"
- Distribution: breeding colonies – The site-specific target attribute is "No significant decline"
- Prey biomass available – The site-specific target attribute is "No significant decline"
- Barriers to connectivity – The site-specific target attribute is "No significant increase"
- Disturbance at the breeding site – The site-specific target attribute is "No significant increase"
- Disturbance at marine areas immediately adjacent to the colony – The site-specific target attribute is "No significant increase"

The diving bird species that are Qualifying Interests for this site are:

- Guillemot
- Razorbill

There are no breeding colonies of Guillemot or Razorbill nearby the proposed development, or suitable habitat to support breeding colonies. The Saltee Islands SPA are of national importance for breeding Guillemot and Razorbill, which is located 22.4km south of the proposed works. There is no potential to cause disturbance to

nesting Guillemot or Razorbill. Therefore, there is no potential for the proposed development to impact colonies directly and affect the attributes: distribution: breeding colonies or disturbance at the breeding site.

Potential impacts on diving bird species Conservation Objectives for Breeding population abundance: individual adult, Productivity rate, Prey biomass available, Barriers to connectivity, Disturbance at marine areas immediately adjacent to the colony arising from the proposed works is outlined in Section 4.3.3 above for the Attributes *Breeding population abundance, Productivity rate, Prey biomass available* and *Barriers to connectivity*.

Disturbance at marine areas immediately adjacent to the colony
Potential impacts arising, as a result of the proposed works, on the attribute Disturbance at marine areas immediately adjacent to the colony are discussed in Section 4.3.3 above for the attribute "Disturbance at the breeding site". Disturbance arising from the proposed works will not exceed those which are already present within the immediate area and therefore, breeding Guillemot and Razorbill in the area will likely be habituated to these levels of disturbance. Therefore, there will be no adverse effects to *Disturbance at marine areas immediately adjacent to the colony* arising from the proposed works.

4.9.2 Lesser Black-backed Gull

The Conservation Objective for Lesser Black-backed Gull in the Saltee Islands SPA is shown in Table 3.9 above. The Attributes of this Conservation Objective are summarised as follows:

- Breeding population abundance: apparently occupied sites (AONs) – The site-specific target attribute is "No significant decline"
- Productivity rate – The site-specific target attribute is "No significant decline"
- Distribution: breeding colonies – The site-specific target attribute is "No significant decline"
- Prey biomass available – The site-specific target attribute is "No significant decline"
- Barriers to connectivity – The site-specific target attribute is "No significant increase"
- Disturbance at the breeding site – The site-specific target attribute is "No significant increase"

There are no breeding colonies of Lesser Black-backed Gull nearby the proposed works, or suitable habitat to support breeding colonies. The Saltee Islands SPA are of national importance for breeding Lesser Black-backed Gull, which is located 22.4km south of the proposed works. There is no potential to cause disturbance to nesting Lesser Black-backed Gull. Therefore, there is no potential for the proposed works to impact colonies directly and affect the attributes: breeding population abundance: apparently occupied sites (AONs), distribution: breeding colonies or disturbance at the breeding site.

Potential impacts on Lesser Black-backed Gull Conservation Objectives for Productivity rate, Prey biomass available and Barriers to connectivity arising from the proposed works is outlined in Section 4.3.3 above for the Attributes *Productivity rate, Prey biomass available* and *Barriers to connectivity*.

4.10 Hook Head SAC

4.10.1 Common Bottlenose Dolphin

The Conservation Objective for Bottlenose Dolphin in Hook Head SAC are shown in Table 3.10 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat – The site-specific target is "Species range within the site should not be restricted by artificial barriers to site use"
- Disturbance – The site-specific target is "Human activities should occur at levels that do not adversely affect the Bottlenose Dolphin population at the site"

Access to suitable habitat
This attribute relates specifically to permanent exclusion of access to suitable habitat. The proposed works are temporary in nature and will be carried out over a period of less than 3 months. Therefore, proposed works do not have the potential to cause permanent (or temporary) exclusion of Bottlenose Dolphin from part of its range, or to prevent access to suitable habitat within their range.

Disturbance
The closest designated site for Bottlenose Dolphin is 60km southwest of the proposed works. Therefore, there is no potential for underwater noise from the proposed works to impact this species within the site, as sound would attenuate to below the thresholds to cause a behavioural response in this species, therefore there is no potential to in-situ impacts to Bottlenose Dolphin within any European site.

However, the proposed works will produce underwater noise that would be in excess of thresholds to cause a behavioural shift to Bottlenose Dolphin. However, in practice this is considered highly unlikely due to the low likelihood that Harbour Porpoise would be present in the area of the proposed works and given that the noise produced by the works would rapidly attenuate to the ambient noise levels.

4.10.2 Harbour Porpoise

The Conservation Objective for Harbour Porpoise in Hook Head SAC are shown in Table 3.10 above. The Attributes of this Conservation Objective are summarized as follows:

- Access to suitable habitat – The site-specific target is "Species range within the site should not be restricted by artificial barriers to site use"
- Disturbance – The site-specific target is "Human activities should occur at levels that do not adversely affect the Harbour Porpoise community at the site"

Access to Suitable Habitat
Harbour Porpoise, a Qualifying Interest of Hook Head SAC, may occur within the wider zone of influence of the proposed works. The potential effects of the proposed works on Harbour Porpoise, including the potential for disturbance and temporary exclusion from suitable habitat, have been assessed in Section 4.5 above in relation to Carnsore Point SAC. Hook Head SAC is located c. 24.1 km southwest of the proposed works. Given this distance, any underwater noise generated during the proposed works will be substantially attenuated before reaching Hook Head SAC and will be of a considerably lower magnitude than that assessed in the vicinity of the proposed works.

Furthermore, as concluded in Section 4.5, the proposed works are temporary in nature and will not result in the permanent or temporary exclusion of Harbour Porpoise from suitable habitat. Therefore, any mitigation which is effective in terms of avoiding adverse effects on Harbour porpoise in the Carnsore Point SAC will be more than adequate to eliminate such effects in the Hook Head SAC.

Disturbance
The potential effects of underwater noise on Harbour Porpoise have been assessed in Section 4.5 above in relation to Carnsore Point SAC. While Hook Head SAC is located c. 24.1 km southwest of the proposed works and any underwater noise reaching the site would be substantially attenuated, Harbour Porpoise are highly mobile and may forage over large areas. Therefore, applying the precautionary principle and as concluded for Carnsore Point SAC, adverse effects cannot be excluded.

Therefore, for the reasons outlined above and in Section 4.5, there is potential for adverse effects on the Conservation Objectives of Hook Head SAC in relation to the attributes Access to Suitable Habitat and Disturbance.

4.11 Summary

In Sections 4.2, it was established that for 57 Qualifying Interests, namely, Estuaries, Mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi), Sea Lamprey, River Lamprey, Twaite Shad, Salmon, Otter, Harbour Seal, Harbour Porpoise, Common Bottlenose Dolphin, Grey Seal, Red-throated Diver, Little Grebe, Great Crested Grebe, Cormorant, Shag, Grey Heron, Bewick's Swan, Whooper Swan, Light-bellied Brent Goose, Shelduck, Teal, Mallard, Pintail, Common Scoter, Scaup, Goldeneye, Red-breasted Merganser, Hen Harrier, Coot, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Mediterranean Gull, Black-headed Gull, Lesser Black-backed Gull, Herring Gull, Roseate Tern, Common Tern, Arctic Tern, Guillemot, Razorbill, Greenland White-fronted Goose, Wigeon, Sandwich Tern, Little Tern and Wetlands for European Sites identified in Table 3.2 – Table 3.10 that in the absence of appropriate mitigation, interruptions or delays in achieving certain Conservation Objectives for those sites, i.e., adverse effects on the integrity of those sites in view of their Conservation Objectives, as a result of the proposed works cannot be ruled out. Therefore, mitigation is required to avoid these adverse effects, mitigation is presented in Section 5.

5. MITIGATION

5.1 Principles and Approach

Section 4 of this NIS assessed the adverse effects likely to arise from the proposed works on the specific Attributes and Targets which define the Conservation Objectives for a number of Qualifying Interests of the Slaney River Valley SAC, the Wexford Harbour and Slobs SPA, The Raven SPA, the Seas off Wexford SPA, the Blackwater Bank SAC, the Carnsore Point SAC, the Saltee Islands SAC, the Saltee Islands SPA, and the Hook Head SAC. This section prescribes mitigation measures to ensure their full and proper implementation aimed at mitigating these adverse effects, thereby protecting the integrity of these European sites during the proposed works.

The mitigation measures prescribed in this NIS have been designed according to the principle of a mitigation hierarchy, as outlined in the European Commission's guidance document *Assessment of plans and projects in relation to Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC, 2021). According to this hierarchy, mitigation measures first suggest *avoidance* (i.e. preventing significant impacts from happening in the first place) and then *reduction* of impact (i.e. reducing the magnitude and/or likelihood of an impact).

As mitigation measures are related directly to impacts and only indirectly to receptors and as, in this case, all of the affected receptors have been identified as being affected the same set of impacts, to describe mitigation measures under the headings of the relevant receptors would lead to undue repetition. Therefore, the measures prescribed in this NIS are described under the headings of the types of impacts which they are intended to mitigate.

The mitigation measures are prescribed in Section 5.2 and a protocol to ensure their full and proper implementation is prescribed in Section 5.3. The significance of any residual effects following the inclusion of mitigation measures is evaluated in Section 5.4. As per the assessment of adverse effects in Section 4, this evaluation is made in view of the relevant Conservation Objectives.

5.2 Mitigation Measures

A suitably qualified Ecological Clerk of Works (ECoW) will be appointed for the duration of the proposed works to ensure that the mitigation measures proposed in this NIS are implemented during the works. The ECoW will have at least five years' experience on similar projects. The ECoW shall possess training, experience and knowledge appropriate to the role, including:

- An NFQ Level 8 qualification recognised by the Higher Education and Training Awards Council (HETAC) or equivalent or other acceptable qualification in an ecological discipline; and,
- Demonstrable appropriate practical experience as an ECoW in the protection of European sites, and with intertidal and estuarine habitats.

A site-specific Method Statements detailing how the works will be carried out will be prepared in advance of the works. A 'toolbox talk' will be conducted to induct the Works Team on the ecological considerations listed in the site-specific Method Statement by the Site Foreman. The site-specific Method Statement will be read, signed and abided by, by all works team and personnel (including the foreman, geophysical surveyors, etc.).

5.2.1 Water Quality

All works in proximity to the River Slaney will follow best practice guidance, as per the following documents:

- *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (IFI, 2016);
- *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (*Eastern Regional Fisheries Board*);*
- *C649 Control of water pollution from linear construction projects: technical guidance*. (CIRIA, 2006);
- *C532 Control of water pollution from construction sites: guidance for consultants and contractors*. (CIRIA, 2001); and
- *Best Practice Guide BPGCS005 – Oil Storage Guidelines* (Enterprise Ireland).

The following mitigation measures relating to the protection of water quality will apply during the construction of the proposed works:

- Stockpiling, temporary or otherwise, of material will be prohibited within 10m of the watercourse, in order to minimize sources of sediment runoff. No permanent, or semi-permanent stockpile will remain on the site after the works.
- Storage tanks will be bunded to capture any oil leakage. Bund specification will conform to the current best practice for oil storage (Enterprise Ireland, BPGCS005).
- Fuel storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage.
- Storage tanks, bunding, equipment, and machinery will be maintained and checked regularly for leakage. Refuelling or maintenance of vessels or equipment will not be carried out on-site, or within 20m of the River Slaney estuary.
- Where required, clean water drains will be created to divert water away from dirty water and works areas to reduce the amount of silt-laden water to be treated onsite.

5.2.1.1 Environmental Surveys

Any plant or machines to be used in the intertidal and subtidal area will be washed down at a designated offsite location prior to mobilising.

Samples taken during the environmental surveys will be brought up to the surface level in a sealed casing or similar to prevent contact with the seawater. Once on the survey vessel, the sediment will be contained and taken off-site for laboratory testing.

Should the ADCP's be deployed on the riverbed, pre-assembled, self-contained seabed frames will be used to minimise sediment uplift and disturbance. The ADCP will be lowered vertically and slowly, so as to avoid dragging or unnecessary movement of equipment which could result in sediment disturbance and uplift.

In addition, the following elements will be implemented for the protection of estuarine ecology:

- All machinery to have an on-board spill kit.
- All vessels to be checked on a daily basis prior to works, and to be free from hydrocarbon leaks.

- A hydrocarbon oil boom to be available at all times onsite and on board the cable lay vessel in the event of it needing to be deployed.
- Marine based fuelling will only be undertaken using specifically designed nozzles to prevent spillages and spill kits will be available.
- All fuelling equipment shall be regularly inspected and serviced.
- Any petrol- or diesel-fuelled pumps or other machinery shall be located within temporary bunded units

5.2.2 Underwater Noise Disturbance

5.2.2.1 Marine Mammals

This section presents the mitigation measures that are required to be implemented during the proposed GI works to avoid potential underwater noise impacts on marine mammals. All of the mitigation measures shall be implemented in full. The mitigation measures are based on the *Guidelines to Manage Risk to Marine Mammals from Man–Made Sounds in Irish Waters* (NPWS, 2014d). The mitigation measures are set out below:

(1) In addition to an ECoW, a qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardised data forms.

(2) Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, underwater cable percussive GI and the use of the sub bottom profiler will not commence if marine mammals are detected within the Monitored Zone.

(3) Underwater cable percussive GI and the use of the sub bottom profiler shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible, the sound-producing activities shall be postponed until effective visual monitoring is possible.

(4) An agreed and clear on-site communication signal must be used between the MMO and the works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break. It shall only proceed on positive confirmation with the MMO.

(5) In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.

(6) This prescribed Pre-Start Monitoring shall subsequently be followed by an appropriate Ramp-Up Procedure which should include continued monitoring by the MMO.

(7) In commencing a GI or environmental surveys where the output peak sound pressure level (in water) from any source including equipment testing exceeds 170 dB re: 1µPa @1m an appropriate Ramp-up Procedure (i.e., "soft-start") must be used.

(8) Where it is possible according to the operational parameters of the equipment and materials concerned, the underwater acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20-40 minutes.

(9) This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.

(10) Where the measures outlined in steps 8 and 9 are not possible, alternatives must be examined whereby the underwater output of acoustic energy is introduced in a consistent, sequential and gradual manner over a period of 20-40 minutes prior to commencement of the full necessary output.

(11) In all cases where a Ramp-Up Procedure is employed the delay between the end of ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound introduction into the environment.

(12) Once an appropriate and full Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time (if permitted), nor if weather or visibility conditions deteriorate nor if marine mammals occur within the Monitored Zone.

(13) If there is a break in sound output for a period greater than 30 minutes (e.g., due to equipment failure, shut-down or location change) then all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) must be undertaken.

(14) For higher output drilling operations which have the potential to produce injurious levels of underwater sound as informed by the associated risk assessment, there is likely to be a regulatory requirement to adopt shorter 5-10 minute break limit after which period all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) shall recommence as for start-up.

5.2.2.2 Atlantic Salmon, Twaite Shad, River Lamprey, Sea Lamprey.

To reduce impact on fish species from underwater noise disturbance, soft-start and ramp-up procedures will be used for any sound-generating works undertaken. This will be undertaken at initial commencement of works, on a day-to-day basis, and on re-start after any stoppages within any day.

5.2.2.3 Diving Seabirds

To reduce impact on diving seabird species from underwater noise disturbance, soft-start and ramp-up procedures will be used for any sound-generating works undertaken. This will be undertaken at initial commencement of works, on a day-to-day basis, and on re-start after any stoppages within any day.

The ECoW, or the MMO, will also have suitable ornithological expertise in the identification of diving seabirds. Where the ECoW or the MMO identifies a significant birds actively diving birds the survey route will be adjusted or will be paused until the diving birds have ceased fishing, or have left the area.

5.2.3 Above Water Noise and Visual Disturbance

The works, including survey equipment deployment, sediment sampling, and ground investigation works, will be limited to the hours of 08:00 to 19:00, thereby reducing noise, vibration and lighting during the hours when mammals, birds, and fishes are typically most active and foraging.

A survey for otter shall be carried out by the ECoW prior to the commencement of any works to search for signs of otter activity in the vicinity of the proposed works, in particular any breeding and/or resting sites. If evidence of Otter is found in the vicinity of the proposed works prior to or during the works, direction will be sought from the NPWS. Where potential holts are identified, a period of monitoring over several days may be required to determine whether holts are active, inactive or disused. If an active holt is discovered, the NPWS will be consulted before commencement of the works.

5.3 Implementation

In order to give effect to the mitigation prescribed in this NIS, it should be a condition of any consent granted in respect of the proposed works that all of the mitigation, including monitoring and enforcement, prescribed in this NIS be binding, during the works phase, on the Contractor. Accordingly, all of the mitigation prescribed herein shall be transposed into the Contract Documents for the ground investigation works and environmental surveys.

During the works, all works must comply with relevant legislation and guidelines in order to reduce and minimise environmental impacts and to protect all ecological receptors. In particular, there must be full compliance with the following:

- The mitigation prescribed in this NIS.
- Any conditions which might be attached to the proposed works licence conditions.
- Any requirements of stakeholders and statutory bodies, e.g., the NPWS and IFI, including:
    - *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (NPWS, 2014).
- All applicable legislative requirements in relation to environmental protection.
- The Transport Infrastructure Ireland (TII) Environmental Assessment and Construction Guidelines, specifically:
    - *Guidelines for the Treatment of Noise and Vibration in National Road Schemes.*

This list is non-exhaustive. All environmental commitments/requirements and relevant legislation and guidelines which are current at the time of construction will be followed.

5.4 Residual Effects

Following the inclusion of the mitigation measures in Section 5.2.2, the probability of impacts from water quality, underwater noise disturbance, above water noise and visual disturbance arising from the proposed works is very low and the significance of any such impacts, if they were to occur, would be negligible. Therefore, it can be concluded beyond reasonable scientific doubt that any residual impacts from underwater noise disturbance arising from the proposed works will not constitute adverse effects on the integrity of the European sites in the Zone of Influence designated for Estuaries, Mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), Mediterranean salt meadows (*Juncetalia maritimi*), Sea Lamprey, River Lamprey, Twaite Shad, Salmon, Otter, Harbour Seal, Harbour Porpoise, Common Bottlenose Dolphin, Grey Seal, Red-throated Diver, Little Grebe, Great Crested Grebe, Cormorant, Shag, Grey Heron, Bewick's Swan, Whooper Swan, Light-bellied Brent Goose, Shelduck, Teal, Mallard, Pintail, Common Scoter, Scaup, Goldeneye, Red-breasted Merganser, Hen Harrier, Coot, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Mediterranean Gull, Black-headed Gull, Lesser Black-backed Gull, Herring Gull, Roseate Tern, Common Tern, Arctic Tern, Guillemot, Razorbill, Greenland White-fronted Goose, Wigeon, Sandwich Tern, Little Tern and Wetlands.

6. IN-COMBINATION EFFECTS

6.1 Introduction

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, "either individually or in combination with other plans or projects". Therefore, the combined effects of the plan or project under assessment and other past, present or foreseeable future plans or projects must also be examined, analysed and evaluated.

6.2 Methodology

An area of 10km in the foreshore area from the proposed works was selected for the assessment of in-combination effects to include developments with reasonable potential for in-combination impacts, whilst excluding those areas which are non-viable because of issues such as topography and distance.

In-combination or cumulative effects result from incremental changes caused by other past, present or reasonably foreseeable projects together with the proposed works. Such effects were assessed by examining previous plans and projects, current plans and projects in planning and proposed future plans and projects within the specified geographic area around the proposed works from 2020 to the present. There is too much uncertainty associated with proposals beyond 5 years into the future and this NIS must be based on data that is readily available. The assessment in this NIS has considered in-combination effects that are:

(a) Likely;

(b) Significant; and,

(c) Relating to a future event which is reasonably foreseeable.

The following data sources have been consulted to identify the plans and projects within the specified geographic area:

- Wexford County Council Planning Portal (WCC, 2026)
- An Coimisiún Pleanála Website (ACP, 2026);
- Projects listed on the EIA Portal (DoHLG, 2026); and
- Foreshore Licence Application Website.

6.3 Assessment of Effects

Table 6.1 below details the assessment of the likelihood of significant effects arising from the proposed works in combination with other plans or projects. This assessment was undertaken in view of the Conservation Objectives of the relevant European sites and found that, given the implementation of the mitigation measures in Section 5 of this NIS, the proposed works does not have the potential to significantly affect any European site in combination with other plans or projects.

Table 6.1 Assessment of adverse effects arising from the proposed works in-combination with other plans or projects.

Plan or Project	Description of Plan or Project	In-Combination Effect(s)
Climate Action Plan 2025	The Climate Action Plan 2025 (CAP25) is the third statutory annual update to Ireland's Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021. The Plan lays out a roadmap of actions which will ultimately lead us to meeting our national climate objective of pursuing and achieving, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. It aligns with the legally binding economy-wide carbon budgets and sectoral emissions ceilings that were agreed by Government in July 2022. Climate Action Plan 2025 builds upon the 2024 plan, refining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings and it should be read in conjunction with Climate Action Plan 2024. The Plan provides a roadmap for taking decisive action to halve Ireland's emissions by 2030 and achieve climate neutrality by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021. Ireland's Climate Action Plan for 2026 is set to be published later this year.	The Climate Action Plan is a national-level plan which aims to improve climate resiliency and sustainability in Ireland. The proposed works are of a nature and scale that they will not result in adverse effects in-combination with this plan.
River Basin Management Plan (2022 – 2027)	The aim of the River Basin Management Plan is to ensure that our natural waters are sustainably managed and that freshwater resources are protected so as to maintain and improve Ireland's water environment. The principal causes of the decline in Ireland's water quality are the increasing loss into water of polluting phosphorus and nitrogen from farmland, inadequately treated wastewater and physical impacts on water bodies, due to river barriers, and drainage of lands and rivers. New targeted and effective measures are required to address declines in water quality and to protect those areas where progress has been made. In addition to improving overall water quality, sustainable water management is important to addressing and adapting to the impacts of climate change, with many of the required measures having co-benefits for climate mitigation and biodiversity.	The River Basin Management Plan is a national-level plan which aims to address Ireland's declines in water quality. The mitigation measures outlined in Section 5.2.1 above will ensure the risk of negative water quality is very low, and any such impacts, if they were to occur, would be negligible. Therefore, the proposed works will not contradict any of the measures outlined in this plan, and the proposed works will not result in adverse effects in-combination with this plan.

Plan or Project	Description of Plan or Project	In-Combination Effect(s)
National Marine Planning Framework	The National Marine Planning Framework (NMPF) brings together all marine-based human activities for the first time, outlining the government's vision, objectives and marine planning policies for each marine activity. The NMPF details how these marine activities will interact with each other in an ocean space that is under increasing spatial pressure, ensuring the sustainable use of our marine resources to 2040. The NMPF is intended as the marine equivalent to the National Planning Framework. This approach will enable the Government to: • set a clear direction for managing our seas • clarify objectives and priorities • direct decision makers, users and stakeholders towards strategic, plan-led, and efficient use of our marine resources The NMPF has been prepared with an ecosystem-based approach and informed by best available knowledge. As part of the preparation of the NMPF, a Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) have been carried out.	The National Marine Planning Framework is a national-level framework which aims to manage marine activities, and ensure the protection of marine ecosystems. The mitigation measures outlined in Section 5.2 above will ensure the risk of negative water quality impacts and disturbance to marine life is very low, and any such impacts, if they were to occur, would be negligible. Therefore, the proposed works will not contradict any of the objectives of this plan, and the proposed works will not result in adverse effects in-combination with this plan.
Wexford County Development Plan 2022 - 2028	Wexford County Development Plan 2022 – 2028 was adopted by the elected Members on 25th July 2022. It sets out the strategic spatial planning framework to guide the development of the county for the six-year period of the plan and beyond. The Plan provides form the physical, economic and social development of the county and sets out the guiding strategies, objectives and standards for this development. The Irish National Heritage Park is listed in the plan as a 'strong performing attraction', and a new Viking village at the Irish National Heritage Park is listed a s development which Council is also actively pursuing under the 'Ireland's Ancient East' brand. A number of policies and objectives within the plan are relevant to the Irish National Heritage Park Ground Investigation Works and Environmental Surveys, including "To promote the development of heritage-led regeneration and engage in and promote initiatives to revitalise the historic cores of our towns and villages together with local communities, heritage property owners and other stakeholders" (Objective BH03).	The Wexford County Development Plan is a high-level strategic plan for the county. The Viking village which the proposed works are for is identified in the plan. These works represent the preliminary stage in the project development process and will support the implementation of the project in accordance with the objectives of the Wexford County Development Plan. Considering this, and considering the nature and scale of the proposed works, and the mitigation measures outlined in Section 5.2, the proposed works will not result in adverse effects in-combination with this plan.

Plan or Project	Description of Plan or Project	In-Combination Effect(s)
MUL240026	This application is for the strategic modelling study of water currents and bathymetry along the south-east coast of Ireland between Dungarvan, Co. Waterford and Greystones, Co. Wicklow. The study requires the deployment of up to nine static Acoustic Doppler Current Profilers (ADCPs) at separate locations within the study area. Ancillary instruments, to collect salinity and temperature data, may also be contained within the trawl resistant frames in which the ADCPs will be deployed. Boat based ADCP surveys and a bathymetric survey (multibeam and single beam) are also required. The proposed project is located off the South East coast between Dungarvan, Co. Waterford and Greystones, Co. Wicklow. Some of the surveys will overlap with the survey area for the proposed works. There may be an overlap in the timing of the study with the proposed works.	In the Appropriate Assessment Determination for this application, it was determined that this application (either individually or in combination with any other plans or projects) would not adversely affect the integrity of any European Sites, in view of the European Sites' conservation objectives, subject to the implementation of mitigation measures. Provided that the mitigation measures relating to this application are adhered to, and considering the nature and scale of the proposed works, and the mitigation measures outlined in Section 5.2, the proposed works will not result in adverse effects in-combination with this application.
MUL260047	This application is for the facilitation of site investigation surveys associated with the proposed N11/N25 Oilgate to Rosslare Harbour Scheme. The survey area overlaps with that of the proposed works. The surveys will comprise of a geophysical survey (multibeam echo sounder, side-scan sonar, sub-bottom profiler, and a vessel deployed Acoustic Doppler Current Profiler (ADCP)), an archaeological wade and metal detector survey, a subtidal benthic survey, and an intertidal benthic survey. This application has yet to be determined by MARA.	The NIS for the application provides mitigation measures for the surveys, including measures relation to the control of pollution, noise and vibration disturbance, and physical disturbance (to benthic habitats). Provided that the mitigation measures relating to this application are adhered to, and considering the nature and scale of the proposed works, and the mitigation measures outlined in Section 5.2, the proposed works will not result in adverse effects in-combination with this application.
MAC260007	This application is for the construction, operation and maintenance of 3 jetties in the River Slaney, including a proposed new longboat experience and an artificial beach area, as part of the proposed new Viking Village in the Irish National Heritage Park. This application was part granted by MARA, subject to conditions. The purpose of the proposed works is to inform the design this application. As such, there will be no overlap in the timing of the proposed works, and the works associated with this application.	While this application overlaps with the proposed works, there will be no overlap. Considering this, and the nature and scale of the proposed works, and provided that the mitigation measures outlined in Section 5.2, the proposed works are adhered to, the proposed works will not result in adverse effects in-combination with this application.

Plan or Project	Description of Plan or Project	In-Combination Effect(s)
FS005195	This application for Foreshore Consent is for the extension of an existing patio, and the retention of a floating pontoon in Ferrycarrig, Wexford. This application received consent under Section 2 of the Foreshore Act 1933 and is effective from the 04/05/2007 – 31/12/2033.	The area to which this Foreshore Consent refers to is located approximately 0.05km from the proposed works. Considering the nature and timescale of this existing Foreshore Consent application as well as the temporary nature and scale of the proposed works, the proposed works sill not result in adverse effects in-combination with this application.
FS005390	This application is for consented bridge pillars and supports to occupy the foreshore.	This bridge is located approximately 0.1km from the proposed works. Considering the nature and timescale of this existing Foreshore Consent application as well as the temporary nature and scale of the proposed works, the proposed works sill not result in adverse effects in-combination with this application.
Wexford County Council **Reference no: 20150540** **Applicant: Thomas Mcguinness** **Address: Newtown, Carrick, Co. Wexford**	**Planning Application Lodged:** 03/07/2015 **Decision date:** 14/08/2015 Permission for the erection of a bar and restaurant and all associated site works including car parking facilities, connection to mains sewerage and road junction improvement works to the national primary route N11. The proposed development represents the substantial replacement of the former "oak tavern" building (previously permitted planning permission no. 20100345).	The proposed environmental surveys and GI works are located within 100m northwest of the project, which is located on the southern bank of the River Slaney, directly upstream of the Ferrycarrig Bridge. An Appropriate Assessment Screening Report was prepared for the project which concluded that there would be no likely significant effect on any European site as a result of the project, alone or in combination with other plans or projects. Given this, and considering the nature and scale of the proposed works, no adverse effects are predicted to arise from the project in-combination with the proposed works.

Plan or Project	Description of Plan or Project	In-Combination Effect(s)
Wexford County Council **Reference no: 20231061** **Applicant: Ferrycarrig Hotel Ltd** **Address: Ferrycarrig, Kilpatrick, Co. Wexford**	**Planning Application Lodged:** 06/09/2023 **Decision date:** 09/02/2024 Permission for retention of development comprising of an earthen bund, 119 metres long and varying in height from 600-1100mm high to mitigate against the risk of tidal flooding to the hotel building. The development is located within the Wexford Harbour and Slobs SPA and Slaney River Valley SAC**.**	The proposed environmental surveys and GI works are located within 250m northwest of the project, which is located downstream on the western bank of the River Slaney, directly north of the Ferrycarrig Bridge. An Appropriate Assessment Screening Report was prepared for the project which concluded that there would be no adverse effect on any European site as a result of the project, alone or in combination with other plans or projects. Given this, and considering the nature and scale of the proposed environmental surveys, no adverse effects are predicted to arise from the project in-combination with the proposed works.
An Coimisiún Pleanála **Case reference: TA26.308002** **Applicant: Wm. Neville & Sons Unlimited** **Address: Carcur Park, Wexford Town, Co. Wexford**	**Planning Application Lodged:** 21/08/2020 **Decision date:** 03/12/2020 Planning is sought for a total of 413 residential units consisting of 175 houses (12 four bedroom detached houses + garages, 20 four bedroom semi-detached houses, 2 four bedroom corner detached houses, 80 three bedroom semi-detached houses, 20 three bedroom terraced houses, 7 three bed end of terrace houses, 4 three bedroom corner houses, 20 two bedroom terraced houses, 6 two bedroom end of terrace, 4 semi-detached houses) and 7 apartment blocks with a total of 238 apartments together with two crèche facilities (Crèche A: 346.4 sqm floor area. Crèche B 395.3sq.m floor area). A total of 767 car parking spaces (248 private parking spaces, 501 public spaces and 18 creche spaces) and all associated site works.	The proposed environmental surveys and GI works are located approx. 1.7km northwest of the project site via linear distance, and 1.9km upstream. An NIS was prepared for the project, which outlined a number of mitigation measures, including for water quality and disturbance. Provided the mitigation measures presented in the NIS are adhered to, and considering the nature and scale of the proposed environmental surveys, no effects are predicted to arise from the project in-combination with the proposed works.

7. CONCLUSION

This NIS has been prepared in accordance with the relevant provisions of the Habitats Directive, the Habitats Regulations, as well as the relevant case law and current guidance. It has demonstrated that, in the absence of appropriate mitigation, the proposed works, individually or in combination with other plans or projects, would adversely affect the integrity of European sites designated for the Qualifying Interests Harbour Porpoise, Bottlenose Dolphin, Harbour Seal, Grey Seal, Twaite Shad, River Lamprey, Sea Lamprey, Atlantic Salmon, Little Grebe, Great Crested Grebe, Cormorant, Shag, Wigeon, Teal, Mallard, Pintail, Scaup, Goldeneye, Red-breasted Merganser, Coot, Guillemot, Razorbill and Puffin. In light of this finding, this NIS has prescribed appropriate mitigation to eliminate or minimise such effects. Any residual effects, either individually or in combination with other plans or projects, have been assessed as not constituting adverse effects on the integrity of any European site. This assessment has been undertaken on the basis of the best scientific knowledge in the field and the Precautionary Principle and no reasonable scientific doubt remains as to the absence of such effects.

It is the considered opinion of ROD, as the author of this NIS, that, in making its AA in respect of the proposed works, MARA, as the Competent Authority in this case, should determine that, given the full and proper implementation of the mitigation prescribed in this NIS, the proposed works, either individually or in combination with other plans or projects, will not adversely affect the integrity of any European site.

8. REFERENCES

ACP (2026) *An Coimisiún Pleanála Website* <https://www.pleanala.ie/en-ie/home> [Accessed 26/01/2026]. An Coimisiún Pleanála, Dublin.

Beck, S., O'Connor, I., Berrow, S.D. and O'Brien. J. (2013) *Assessment and Monitoring of Ocean Noise in Irish Waters.* STRIVE Report, Environmental Protection Agency, Johnstown Castle Estate, Wexford, Ireland (2011-W-MS 6), pp 1-86.

Berrow, S.D., Whooley, P., O'Connell, M. and Wall, D. (2010). *Irish Cetacean Review (2000-2009).* Irish Whale and Dolphin Group, Kilrush, Co. Clare. 60pp.

Birdlife International (2014). *Species factsheet:* Sternula albifrons (Little Tern). BirdLife International, Cambridge, UK. Available from the BirdLife Data Zone.

Brown, D. R., & Thompson, P. M. (2013). *Foraging range and habitat use of grey seals during the breeding season.* Marine Ecology Progress Series, 482, 1-11.

BTO (2000) *Bird Census Techniques 2nd Edition*. Academic Press, London.

Burke, B., Lewis, L. J., Fitzgerald, N., Frost, T., Austin, G., and Tierney, T.D. (2018). *Estimates of waterbird numbers wintering in Ireland, 2011/12 – 2015/16*. Irish Birds 11: 1–12.

Carlson, N.V., Juanes, F., Bertram, D.F. and O'Hara, P.D., 2025. *Moving up the chain: impacts of noise on marine birds—an indirect pathway through an important forage fish. The Effects of Noise on Aquatic Life IV* (pp. 1-11). Springer Nature Switzerland.

Carter MID, Boehme L, Cronin MA, Duck CD, Grecian WJ, Hastie GD, Jessopp M, Matthiopoulos J, McConnell BJ, Miller DL, Morris CD, Moss SEW, Thompson D, Thompson PM and Russell DJF (2022) Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management. Front. Mar. Sci. 9:875869. doi: 10.3389/fmars.2022.875869.

CIRIA, 2001. *C532 Control of water pollution from construction sites: guidance for consultants and contractors*.

CIRIA, 2006. *C649 Control of water pollution from linear construction projects: technical guidance*.

Citron, S., Gutierrez- Ibanez, C., Keirnan, A., Weisbecker, V., Wylie, D., Iwaniuk, A.N., (2025). *The evolution of an "owl- like" auditory system in harriers: Anatomical evidence.* Journal of Anatomy, 247:970-980.

Collins, J. (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines.* 4th edition. Bat Conservation Trust, London

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Official Journal of the European Communities, L206/7.

Cunningham, L.; Baxter, J. M; Boyd, I; & Duck, C. D. (2009) *Harbour Seal movements and haul-out patterns: Implications for monitoring and management*. Aquatic Conservation: Marine and Freshwater Ecosystems. 19. 398 – 407.

Cutts N, Hemingway K and Spencer J (2013). *The Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects*. Produced by the Institute of Estuarine and Coastal Studies (IECS). Version 3.2.

DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.

Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive). Official Journal of the European Union, L20/7.

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 on establishing a framework for the community action in the field of water policy (Water Framework Directive). Official Journal of the European Union, L327.

DoHLG (2024*) EIAR Portal* <https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1> [Accessed 20/08/2024]. Department of Housing, Local Government and Heritage.

Eastern Regional Fisheries Board. *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.*

EC (2013) *Interpretation Manual of European Union Habitats – EUR28*. Environment Directorate-General of the European Commission.

EC (2021) *Assessment of plans and Projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.

Eionet (2018) *Population status and trends at the EU and Member State levels: 2013-2018*. Article 17 Assessments. <http://bd.eionet.europa.eu/article17/> [Accessed: 11/01/2022]. European Topic Centre on Biological Diversity.

Enterprise Ireland/ *Best Practice Guide BPGCS005 – Oil Storage Guidelines*.

EPA (2024) *Unified GIS Application* <https://gis.epa.ie/EPAMaps> [Accessed 20/08/2024]. Environmental Protection Agency, Wexford.

European Communities (Birds and Natural Habitats) Regulations, 2011. SI No. 477/2011.

European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2013. SI No. 499/2013.

European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2015. SI No. 355/2015.

Fedak, M. A., McConnell, B. J., & Hunter, C. (2001). *Foraging ecology of grey seals (Halichoerus grypus*) in the North Sea. Aquatic Mammals, 27(3), 74-88.

Flora (Protection) Order, 2022. *SI No. 235/2022.*

Fossitt, J. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

Gilbert, G., Gibbons, D.W. and Evans, J. (1998) *Bird Monitoring Methods – a manual of techniques for key UK species*. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

Hansen, K.A., Maxwell, A., Siebert, U., Larsen, O.N., Wahlberg, M., (2017). *Great cormorants* (Phalacrocorax carbo*) can detect auditory cues while diving.* The Science of Nature, 104:45.

Hansen, K. A., Hernandez, A., Mooney, T.A., Rasmussen, M.H., Sørensen, K. and Wahlberg, M., 2020. T*he common murre (*Uria aalge), *an auk seabird, reacts to underwater sound*. *The Journal of the Acoustical Society of America*, *147*(6), pp.4069-4074.

Hartley Anderson Limited. 2020. *Underwater acoustic surveys: review of source characteristics, impacts on marine species, current regulatory framework and recommendations for potential management options*. NRW Evidence Report No: 448, 136pp, NRW, Bangor, UK.

ICES. (2017). *Marine Construction and Underwater Noise: Implications for Marine Life.*
IFI (2019) *Sampling Fish in Rivers 2019 – River Liffey Catchment, Factsheet No. 2019/04.* National Research Survey Programme. Inland Fisheries Ireland

IFI, 2016. *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.* Inland Fisheries Ireland.

IWDG (2020). *Marine Mammal Risk Assessment of Proposed Dodder Public Transportation Opening Bridge*. Irish Whale and Dolphin Group Consulting.

Jessopp, M., Mackey, M., Luck, C., Critchley, E., Bennison, A, and Rogan, E. (2018) *The seasonal distribution and abundance of seabirds in the western Irish Sea. Department of Communications, Climate Action and Environment, and National Parks* & Wildlife Service, Department of Culture, Heritage & the Gaeltacht, Ireland. 90pp.

JNCC (2023). Review of Management Unit boundaries for cetaceans in UK waters. Report no. 724. Joint Nature Conservation Committee.

Keogh, N. T. & Lauder, A. W. (2021) *National Urban Gull Survey 2021: Technical Report.* National Parks & Wildlife Service of Department of Housing, Local Government & Heritage.

Kruuk, H. (1995) *Wild Otters, Predation and Populations*. Oxford University Press, Oxford.

Maitland, P. and Hatton-Ellis, T. (2003). *Ecology of the Allis and Twaite Shad, Alosa alosa and Alosa fallax*. Conserving Natura 2000 Rivers, Ecology Series No. 3

McKeown, M. (2014) *Measurements of Pile driving Noise*. Alexandra Basin Dublin Port. Technical Report for RPS, August 2014.

Miller, J. H. et al. (2000). *Underwater Noise Measurement in Marine Environments*. Journal of Acoustic Society.

NBDC (2025) *Biodiversity Maps* <https://maps.biodiversityireland.ie/Map> [accessed July 2025]. National Biodiversity Data Centre, Waterford.

NPWS (2010) *Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.

NPWS (2011a) *Conservation Objectives: Saltee Islands SAC [000707] and Saltee Islands SPA [004002].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2011b) *Conservation objectives supporting document - marine habitats and species: Slaney River Valley SAC [000781].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2012a) *Conservation Objectives: The Raven SPA [004019].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2012b) *Conservation Objectives: Wexford Harbour and Slobs SPA [004076].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2019a) *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview.* National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.

NPWS (2019b) *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessment.* National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.

NPWS (2019c) *The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessment.* National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.

NPWS (2024a) *Conservation Objectives: Blackwater Bank SAC [002953].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2024b) *Conservation Objectives: Carnsore Point SAC [002269].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2024c) *Conservation Objectives: Seas off Wexford SPA [004237].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2025a) *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2025b*) The Status of EU Protected Habitats and Species in Ireland. Volume 2. Habitat Assessments.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2025c) *The Status of EU Protected Habitats and Species in Ireland. Volume 3. Species Assessments.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2025d) *Conservation Objectives: Hook Head SAC [000764].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2026a) *Online Map Viewer* <http://webgis.npws.ie/npwsviewer/> [Accessed 20/08/2024]. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.

NPWS (2026b) *Conservation Objectives: Slaney River Valley SAC [000781].* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

O'Neill, A. et al. (2020). *Acoustic Monitoring in Urban Marine Environments: Dublin Bay and the Liffey Estuary*. Marine Pollution Bulletin.

OPR (2021) *Practice Note PN01: Appropriate Assessment Screening for Development Management*. Office of the Planning Regulator, Dublin.

Popper, A. N., A. D. Hawkins, R. R. Fay, D. A. Mann, S. Bartol, T. J. Carlson, S. Coombs, W. T. Ellison, R. L. Gentry, M. B. Halvorsen, S. Løkkeborg, P. H. Rogers, B. L. Southall, D. G. Zeddies and W. N. Tavolga, **2014.** *Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI.* SpringerBriefs in Oceanography. Cham: Springer International Publishing. doi:10.1007/978-3-319-06659-2.

Power, A., McDonnell, P., Tierney, D., (2021). *Estimated foraging ranges of the breeding seabirds of Ireland's marine Special Protected Area network.*

Rikardsen, A.H., David Righton, John Fredrik Strøm, Eva B. Thorstad, Patrick Gargan, Timothy Sheehan, Finn Økland, Cedar M. Chittenden, Richard D. Hedger, Tor F. Næsje, Mark Renkawitz, Johannes Sturlaugsson, Pablo Caballero, Henrik Baktoft, Jan G. Davidsen, Elina Halttunen, Serena Wright, Bengt Finstad & Kim Aarestrup (2011). *Redefining the oceanic distribution of Atlantic salmon.* Scientific Reports, 11, 11-122

Roberts, L., Cheesman, S., Breithaupt, T. and Elliott, M., 2015. *Sensitivity of the mussel Mytilus edulis to substrate-borne vibration in relation to anthropogenically generated noise*. *Marine Ecology Progress Series*, *538*, pp.185-195.

Scottish Natural Heritage, 2023. Guidance Note 3: Guidance to support Offshore Wind applications: Marine Birds Identifying theoretical connectivity with breeding site Special Protection Areas using breeding season foraging ranges. Version 1. Available at: Guidance Note 3: Guidance to support Offshore Wind applications: Marine Birds - Identifying theoretical connectivity with breeding site Special Protection Areas using breeding season foraging ranges | NatureScot

Sharples, R. J., & McConnell, B. J. (1998). *Foraging behaviour of grey seals in the North Sea and Irish Sea.* Journal of the Marine Biological Association of the United Kingdom, 78(3), 761-763.

Sigray, P., & Öhman, M. (2016). *Underwater Noise from Marine Construction Activities: A Review of the Environmental Impacts*. Marine Pollution Bulletin.

Smith, A. B., & Jones, C. D. (2024). *Response of Eurasian otters (*Lutra lutra*) to underwater acoustic harassment device sounds*. *Scientific Reports, 14*, Article 55481.

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

Southall, Brandon & Bowles, A.E. & Ellison, William & Finneran, J.J. (2007). *Marine mammal noise-exposure criteria: initial scientific recommendations*. Aquat Mamm. 33. 411-522.

Sweetman & Others v. An Bord Pleanála [2013] C-258/11.

Southall, Brandon & Bowles, A.E. & Ellison, William & Finneran, J.J. (2007). *Marine mammal noise-exposure criteria: initial scientific recommendations*. Aquat Mamm. 33. 411-522.

Southall, B.L., Finneran, J.J., Reichmuth, C., Nachtigall, P.E., Ketten, D.R., Bowles, A.E., Ellison, W.T., Nowacek, D.P., Tyack, P.L. (2019) *Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals* 45 (2), 125-232.

Thompson, P. M., & Miller, D. (1991). *Foraging ecology of harbour seals (Phoca vitulina) in the inner and outer regions of the Moray Firth, Scotland*. Journal of Zoology, 223(4), 507-526.

TII (2006) *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes*. Transport Infrastructure Ireland, Dublin.

TII (2005) *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*. Transport Infrastructure Ireland, Dublin.

TII (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. Transport Infrastructure Ireland, Dublin.

TII (2008) *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*. Transport Infrastructure Ireland, Dublin.

Vincent, C., Huon, M., Caurant, F., Dabin, W., Deniau, A., Dixneuf, S, Dupuis, L., Elder, J.F., Fremau, M.H., Hassani, S., Hemon, A., Karpouzopoulos, J., Lefeuvre, C., McConnell, B.J., Moss, S.E.W., Provost, P., Spitz, J., Turpin, Y., and Ridoux, V. (2017). *Grey and harbour seals in France: Distribution at sea, connectivity and trends in abundance at haulout sites*. Deep Sea Research Part II: Topical Studies in Oceanography: 141.

WCC (2025) *ePlanning Website for Wexford County Council*. Wexford County Council.

Woodward, I., Thaxter, C.B., Owen, E., and Cook, A.S.C.P. (2019). *Desk-based revision of seabird foraging ranges used for HRA screening.* BTO Research Report No. 724.

APPENDIX A
AA SCREENING DETERMINATION

To:	Dr Alison McCarthy, Senior Marine Advisor, MULPA	**From:**	Dr Ciar O'Toole, Senior Marine Advisor, MULPA
Please see below for AA screening and determination report from external consultant Aisling Hearty of Aquafact, prepared using MARA procedures and templates with my supervision.			

Appropriate Assessment Screening and Determination Report

To:	MULPA Directorate, MARA	**Prepared by (on behalf of MARA):**	Aisling Hearty, Principal Ecologist AQUAFACT (APEM Group)
		Reviewed by:	Dr Ciar O'Toole, MARA
Date:	10/09/2026	**Maritime Usage Licence Application No:**	MUL260005
Applicant:		Wexford County Council County Hall Carricklawn Wexford Y35 WY93	
Type(s) of maritime usage activity in accordance with Schedule 7 of the Maritime Area Planning Act 2021:		*3. Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000.*	
Location of proposed maritime usage:		Lower Slaney Estuary at Ferrycarrig, Co. Wexford, north of the existing Irish National Heritage Park.	
Licence application received:		19/02/2026	

1. Background

Wexford County Council (the applicant) has applied to the Maritime Area Regulatory Authority (MARA) for a Maritime Usage Licence (MUL) to undertake marine environmental surveys and ground investigation works for the purposes of site investigation, falling under Schedule 7(3) of the Maritime Area Planning Act 2021 (the MAP Act). The proposed maritime usage is required to inform the design of the proposed Irish National Heritage Park project at Ferrycarrig, Co. Wexford, including three jetties and a man-made beach area on the southern bank of the Lower Slaney Estuary, north of the existing Irish National Heritage Park.

2. Description of maritime usage(s) and local site characteristics

2.1 Brief description of the maritime usage

The proposed maritime usage comprises environmental surveys and ground investigation works within the Lower Slaney Estuary. The environmental surveys include deployment of two Acoustic Doppler Current Profilers to measure tidal flow, speed and direction. The units will be deployed on the riverbed in frames or bottom mounts or may be attached to a floating buoy if site conditions are unsuitable. Bottom mounted units would have an approximate footprint of 1.5 m² each and would be deployed for approximately 29 days. An unmanned surface vessel may also be deployed for a 24-hour period to supplement data collection.

Sediment sampling will be undertaken at five locations using a Van Veen grab or similar method from a small vessel. Two samples of approximately five litres will be collected at each location to a penetration depth of approximately 15 cm, giving a total sample volume of approximately 50 litres. Two samples from each location are taken, one for particle size and the other for benthic sediment quality analysis.

The ground investigation works include five combined cable percussion and rotary core boreholes within the river, undertaken from a low draft/flat bottomed jack up barge. Boreholes are scheduled to extend to approximately 20 to 30 m until they reach rock, and then an additional 5 m into the rock. Each borehole is expected to take up to 3 days to complete. Five additional grab samples for assessment of contamination will be taken to 0.5 m depth.

Geophysical surveys include Multi Beam Echo Sounder, Side Scan Sonar and Sub Bottom Profiling surveys.

Noise-generating equipment includes vessel engines, cable-percussion boring, rotary-core drilling and sub-bottom profiling. The submitted acoustic assessment reports frequencies of <1 kHz, <0.5 kHz, 0.5–5 kHz and 2–15 kHz respectively, which overlap with marine-mammal hearing ranges. On the submitted source-level assumptions, cable percussion and sub-bottom

profiling could exceed cited auditory-injury thresholds close to the source, while lower received levels may cause behavioural disturbance or displacement. The higher-frequency MBES (200–500 kHz) and side-scan sonar (200 – 700 kHz) do not overlap with the stated marine-mammal hearing ranges.

The applicant has requested an overall MUL duration of 1 year to accommodate scheduling, weather and equipment availability. Within this licence period, the ADCP deployment is expected to last approximately 30 days, sediment sampling 1 day, and each of the 5 marine boreholes approximately 3 days, with the overall GI works anticipated to be completed within 3 months of commencement. The proposed works will be undertaken within the tidal reaches of the Lower Slaney Estuary and adjacent to the existing masonry river wall along the old R730 at Ferrycarrig. Indicative sample locations are not confirmed and will depend on riverbed conditions.

2.2 Brief description of the site characteristics

The proposed maritime usage is located within the Lower Slaney Estuary, Co. Wexford. Land use to the north is predominantly agricultural, while the southern side includes urban development and the existing Irish National Heritage Park. Fossitt habitat mapping indicates that estuary is the dominant habitat within the proposed works footprint, with mud shores, lower salt marsh and reed and large sedge swamps also present. A habitat survey undertaken on 19 April 2024 identified Lower salt marsh (CM1) along the southern boundary of the proposed MUL area, adjacent to the existing stone wall. Species recorded included Common Saltmarsh-grass (*Puccinellia maritima*) and Sea-purslane (*Atriplex portulacoides*). The habitat was limited in extent and species-poor and corresponds to Atlantic salt meadows [1330], a Qualifying Interest of the Slaney River Valley SAC.
The Lower Slaney Estuary is situated within the Slaney River Valley SAC and Wexford Harbour and Slobs SPA. The wider estuary supports marine mammals, otter, wintering birds and migratory fish. Otter surveys were undertaken in April 2024 and December 2025, with a live otter recorded during the December 2025 survey and additional ad hoc sightings recorded in the River Slaney Estuary during wintering bird surveys. Monthly wintering waterbird surveys were undertaken during the 2020/21, 2021/22 and 2023/24 winter seasons from six vantage points along the Slaney Estuary, with a range of wintering waterbirds, including several Special Conservation Interests of Wexford Harbour and Slobs SPA, recorded.

The proposed works are within the Lower Slaney Estuary Transitional Waterbody, which was classified as Poor status and At Risk in the 2019 to 2024 WFD assessment.

3. Identification of relevant European sites

The MUL application is subject to screening for appropriate assessment in accordance with Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations 2011,

as amended, to determine if it alone, or in-combination with other plans or projects, is likely to have a significant effect on a European sites, in view of best scientific knowledge and the conservation objectives of the sites. The applicant submitted a Supporting Information for Screening of Appropriate Assessment (SISAA) report in support of the application which was referred to during this assessment

The proposed maritime usage is not directly connected with or necessary to the management of any European site(s). The European sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) listed on Table 1 have been considered for appropriate assessment, given the nature, scale and Zone of Influence of the maritime usage, the conservation objectives of the European sites and using the Source-Pathway-Receptor model.

Table 1 - Identification of relevant European sites, their qualifying interests and site-specific conservation objectives. Those Qualifying Interests marked in bold have been screened in for Stage 2 appropriate assessment.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
Special Areas of Conservation (SACs)					
Slaney River Valley SAC [000781]	0	**Estuaries [1130]** **Mudflats and sandflats not covered by seawater at low tide [1140]** **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]** ***Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]** ***Petromyzon marinus* (Sea Lamprey) [1095]** ***Lampetra planeri* (Brook Lamprey) [1096]** ***Lampetra fluviatilis* (River Lamprey) [1099]** ***Alosa fallax fallax* (Twaite Shad) [1103]** ***Salmo salar* (Salmon) [1106]** ***Lutra lutra* (Otter) [1355]** ***Phoca vitulina* (Harbour Seal) [1365]**	Yes. The proposed surveys overlap the SAC and Annex I Habitat Estuaries [1130]. Atlantic salt meadows [1330] were recorded along the southern boundary of the proposed MUL area and Fossitt mud shores (LS4), potentially corresponding to Mudflats and sandflats not covered by seawater at low tide [1140] were recorded along the southwestern boundary during habitat surveys undertaken in April 2024. Possible physical habitat disturbance and/or water quality effects from the borehole and grab samples and from the jack up barge. The SAC is designated for a number of species including fish, mussel, otter and seal. Possible underwater noise disturbance to harbour seal, freshwater pearl mussel, and fish. Possible visual and above water noise disturbance to otter and harbour seal due to bathymetry survey activities and cable percussion and rotary core boreholes and water quality impacts to freshwater pearl mussel and fish and lamprey species.	**Yes.**	NPWS (2011) Conservation Objectives: Slaney River Valley SAC 000781. Version 1.0. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]	No significant S-P-R.		
Raven Point Nature Reserve SAC [000710]	10.1	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	No significant S-P-R.	No	NPWS (2011) Conservation Objectives: Raven Point Nature Reserve SAC 000710. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170] Humid dune slacks [2190]			
Long Bank SAC [002161]	15.45	Sandbanks which are slightly covered by sea water all the time [1110]	No significant S-P-R.	No	NPWS (2013) Conservation Objectives: Long Bank SAC 002161. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Blackwater Bank SAC [002953]	22.86	***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes. Mobile individuals associated with the SAC may occur within the zone of influence of the proposed project and may be exposed to underwater noise.	**Yes.**	NPWS (2024) Conservation Objectives: Blackwater Bank SAC 002953. Version 3. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Sandbanks which are slightly covered by sea water all the time [1110]	No significant S-P-R.		
Carnsore Point SAC [002269]	27.87	***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes. Mobile individuals associated with the SAC may occur within the zone of influence of the proposed project and may be exposed to underwater noise.	**Yes.**	NPWS (2024) Conservation Objectives: Carnsore Point SAC 002269. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170]	No significant S-P-R.		

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
Saltee Islands SAC [000707]	48.24	***Halichoerus grypus* (Grey Seal) [1364]**	Yes. Mobile individuals associated with the SAC may occur within the zone of influence of the proposed project and may be exposed to underwater noise and visual and above water noise disturbance.	**Yes.**	NPWS (2011) Conservation Objectives: Saltee Islands SAC 000707. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330]	No significant S-P-R.		
Hook Head SAC [000764]	67.81	***Tursiops truncatus* (Common Bottlenose Dolphin) [1349]** ***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes. Mobile individuals associated with the SAC may occur within the zone of influence of the proposed project and may be exposed to underwater noise disturbance.	**Yes.**	NPWS (2025) Conservation Objectives: Hook Head SAC 000764. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No significant S-P-R.		
Special Protection Areas (SPAs)					
Wexford Harbour and Slobs SPA [004076]	0	**Little Grebe (*Tachybaptus ruficollis*) [A004]** **Great Crested Grebe (*Podiceps cristatus*) [A005]**	Yes. The proposed surveys overlap the SPA and supporting estuarine habitat. Possible visual and above water noise disturbance from vessel, barge and survey activities, underwater noise disturbance to diving birds.	**Yes.**	NPWS (2012) Conservation Objectives: Wexford Harbour and Slobs SPA 004076. Version 1. National Parks and Wildlife

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Cormorant (*Phalacrocorax carbo*) [A017] **Grey Heron (*Ardea cinerea*) [A028]** **Bewick's Swan (*Cygnus columbianus bewickii*) [A037]** **Whooper Swan (*Cygnus cygnus*) [A038]** **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]** **Shelduck (*Tadorna tadorna*) [A048]** **Teal (*Anas crecca*) [A052]** **Mallard (*Anas platyrhynchos*) [A053]** **Pintail (*Anas acuta*) [A054]** **Scaup (*Aythya marila*) [A062]** **Goldeneye (*Bucephala clangula*) [A067]** **Red-breasted Merganser (*Mergus serrator*) [A069]** **Hen Harrier (*Circus cyaneus*) [A082]** **Coot (*Fulica atra*) [A125]** **Oystercatcher (*Haematopus ostralegus*) [A130]** **Golden Plover (*Pluvialis apricaria*) [A140]**			Service, Department of Housing, Local Government and Heritage.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Black-headed Gull (Larus *ridibundus*) [A179] Lesser Black-backed Gull (*Larus fuscus*) [A183] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] Wigeon (*Mareca penelope*) [A855] Little Tern (*Sternula albifrons*) [A885] Wetland and Waterbirds [A999]			

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
The Raven SPA [004019]	8.6	**Red-throated Diver (*Gavia stellata*) [A001]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Common Scoter (*Melanitta nigra*) [A065]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Sanderling (*Calidris alba*) [A144]** **Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]**	Yes. The proposed surveys are within the foraging ranges of these SCIs. Possible visual and above water noise disturbance from vessel and survey activities and underwater noise disturbance to diving seabirds.	**Yes**	NPWS (2012) Conservation Objectives: The Raven SPA 004019. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Wetland and Waterbirds [A999]	No significant S-P-R.		

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
Seas off Wexford SPA [004237]	9.7	**Red-throated Diver (*Gavia stellata*) [A001]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Shag (*Phalacrocorax aristotelis*) [A018]** **Common Scoter (*Melanitta nigra*) [A065]** **Mediterranean Gull (*Larus melanocephalus*) [A176]** **Black-headed Gull (*Larus ridibundus*) [A179]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Herring Gull (*Larus argentatus*) [A184]** **Roseate Tern (*Sterna dougallii*) [A192]** **Common Tern (*Sterna hirundo*) [A193]** **Arctic Tern (*Sterna paradisaea*) [A194]** **Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200]** **Sandwich Tern (*Thalasseus sandvicensis*) [A863]**	Yes. The proposed surveys are within the foraging ranges of these functionally linked SCIs. Possible visual and above water noise disturbance from vessel and survey activities and underwater noise disturbance to diving seabirds.	**Yes.**	NPWS (2024) Conservation Objectives: Seas off Wexford SPA 004237. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Gannet (*Morus bassanus*) [A016] Kittiwake (*Rissa tridactyla*) [A188] Puffin (*Fratercula arctica*) [A204] Little Tern (*Sternula albifrons*) [A885]	No significant S-P-R.		
Tacumshin Lake SPA [004092]	15.53	Little Grebe (*Tachybaptus ruficollis*) [A004] Bewick's Swan (*Cygnus columbianus bewickii*) [A037] Whooper Swan (*Cygnus cygnus*) [A038] Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054] Tufted Duck (*Aythya fuligula*) [A061] Coot (*Fulica atra*) [A125] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142]	No significant S-P-R.	No	NPWS (2025) Conservation Objectives: Tacumshin Lake SPA 004092. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Black-tailed Godwit (*Limosa limosa*) [A156] Wigeon (*Mareca penelope*) [A855] Shoveler (*Spatula clypeata*) [A857] Gadwall (*Mareca strepera*) [A889] Wetland and Waterbirds [A999]			
Ballyteige Burrow SPA [004020]	17.07	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Wetland and Waterbirds [A999]	No significant S-P-R.	No	NPWS (2014) Conservation Objectives: Ballyteige Burrow SPA 004020. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Lady's Island Lake SPA [004009]	17.29	Black-headed Gull (*Larus ridibundus*) [A179] Roseate Tern (*Sterna dougallii*) [A192]	No significant S-P-R.	No	NPWS (2025) Conservation Objectives: Lady's Island Lake SPA 004009. Version 1. National Parks and Wildlife Service,

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Common Tern (*Sterna hirundo*) [A193] Arctic Tern (*Sterna paradisaea*) [A194] Sandwich Tern (*Thalasseus sandvicensis*) [A863] Gadwall (*Mareca strepera*) [A889] Wetland and Waterbirds [A999]			Department of Housing, Local Government and Heritage.
Bannow Bay SPA [004033]	19.08	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Pintail (*Anas acuta*) [A054] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157]	No significant S-P-R.	No	NPWS (2012) Conservation Objectives: Bannow Bay SPA 004033. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]			
Keeragh Islands SPA [004118]	22.32	Cormorant (*Phalacrocorax carbo*) [A017]	No significant S-P-R.	No	NPWS (2025) Conservation Objectives: Keeragh Islands SPA 004118. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Saltee Islands SPA [004002]	22.99	**Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200]**	Yes. The proposed surveys are within the published foraging ranges of the identified functionally linked SCI seabirds. Possible visual and above water noise disturbance from vessel and survey activities and underwater noise disturbance to diving seabirds.	**Yes.**	NPWS (2011) Conservation Objectives: Saltee Islands SPA 004002. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Fulmar (*Fulmarus glacialis*) [A009] Gannet (*Morus bassanus*) [A016] Puffin (*Fratercula arctica*) [A204] Kittiwake (*Rissa tridactyla*) [A188] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018]	No significant S-P-R.		

European site and site code	Distance from proposed MUL area (km)	List of Qualifying Interests	Connections (Source pathway receptor)	European Site Screened in	Site specific conservation objectives
		Herring Gull (*Larus argentatus*) [A184]			
Cahore Marshes SPA [004143]	27.73	Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] Wigeon (*Mareca penelope*) [A855] Wetland and Waterbirds [A999]	No significant S-P-R.	No	NPWS (2025) Conservation Objectives: Cahore Marshes SPA 004143. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
River Nore SPA [004233]	37.16	Kingfisher (*Alcedo atthis*) [A229]	No significant S-P-R.	No	NPWS (2024) Conservation Objectives: River Nore SPA 004233. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

4. Assessment of likely significant effects

Table 2 identification of potential direct and indirect impacts that may have an effect on the conservation objectives of European sites, taking into account the nature and scale of the proposed maritime usage.

Potential impacts	Possible significance of potential impacts (duration, magnitude, etc.)
Disturbance from underwater noise	Cable Percussion boring, Rotary Core drilling, Sub Bottom Profiling and vessel activity will generate underwater noise at frequencies that may overlap with the hearing ranges of marine mammals and fish. The assessment identifies potential temporary disturbance and displacement, while higher intensity sources may also present a risk of auditory injury.
Visual and airborne noise disturbance	Vessels, barge operations, survey activities and personnel may cause temporary airborne noise and visual disturbance to seals, birds and otter using the estuary and adjacent intertidal habitats.
Physical habitat disturbance	ADCP frames, jack-up barge operations, grab sampling and boreholes will directly disturb the riverbed, potentially resuspending sediment, displacing benthic fauna and altering estuarine habitat communities. Given the direct overlap with Estuaries [1130], the presence of Atlantic salt meadows [1330] along the southern boundary of the MUL area, and uncertainty regarding the final locations of the proposed intrusive works, likely significant effects cannot be excluded.
Water quality effects	Borehole and sediment sampling may remobilise suspended sediment and contaminants. Vessel and barge operations also present an accidental pollution pathway from fuels or hydrocarbons. Effects are expected to be localised and short term given the scale of the works.

In-combination effects

The potential impacts of the proposed site investigations must be considered individually and also in combination with other plans or projects. All types of plans or projects that could, in combination with this application, have a significant effect, have been considered. This in combination assessment has been undertaken using professional and scientific judgement and is assessed primarily in terms of potential spatial and temporal impacts.

The spatial scope of the in-combination assessment comprises the Lower Slaney Estuary and connected Wexford Harbour and is based on the spatial extent of the site investigations and the potential range of underwater noise, visual and above water noise disturbance, sediment mobilisation and water quality effects arising from the proposed activities. The temporal scope of the in-combination assessment is based on the period over which the activities are proposed. The temporal scope for the ground investigation works is three months, however the MUL duration of one year is requested to allow for flexibility to account for survey conditions, availability, *etc*. so the full MUL duration has been assessed.
A search of relevant databases, including the MARA MAC and MUL Applications and Determinations database, Wexford County Council, An Coimisiún Pleanála, and Discover Ireland and Failte Ireland websites was undertaken on the 22/07/2026. Table 3 below outlines those activities which are considered to have the potential to act in combination with the proposed maritime usage.

Table 3: List of projects which were considered to have potential in-combination impacts on European sites.

Application Ref.	Project description	Distance from proposed MUL area (km)	Project Status
MUL240026	Strategic modelling study of water currents and bathymetry along the southeast coast of Ireland between Dungarvan, Co. Waterford and Greystones, Co. Wicklow.	Overlap	Granted. 08/04/2026
MUL260047	To facilitate site investigation surveys associated with the proposed N11/N25 Oilgate to Rosslare Harbour Scheme	Overlap	Applied.
MAC260007	The construction, operation and maintenance of 3 jetties in the River Slaney including a proposed new longboat experience and an artificial beach area as part of the proposed new Viking Village.	Overlap	Granted (partially) 01/07/2026

Application Ref.	Project description	Distance from proposed MUL area (km)	Project Status
FS005195	Extension to an existing patio & retention of floating pontoon	0.05 km	Consented
FS005390	BRIDGE- foreshore to be occupied by pillars and supports.	0.1 km	Consented
20150540	Permission for the erection of a bar and restaurant and all associated site works, including car parking facilities, connection to mains sewerage, and road junction improvement works to the national primary route N11. The proposed development represents the substantial replacement of the former "Oak Tavern" building (previously permitted under planning permission no. 20100345).	0.05 km	Granted

The following plans, related to the development of the maritime environment were also considered:

- Climate Action Plan
- River Basin Management Plan
- National Marine Planning Framework
- Wexford County Development Plan

Likely significant in combination effects between this application and the plans listed above and projects listed in Table 3 on the conservation objectives of the European sites considered in this report cannot be excluded at this stage. This is due to the spatial overlap with other proposed maritime activities and the potential for temporal overlap, which may result in additive underwater noise, visual and above water noise disturbance, physical disturbance and water quality effects on the same qualifying interests and special conservation interests, which requires consideration under the precautionary principle.

Were mitigation measures considered during the screening process?
No

5. Screening Determination Statement

<u>The assessment of significant effects</u>

Having considered the legal framework applicable to appropriate assessment, the information on file, and having regard to:

- The nature and scale of the proposed maritime usage;
- The location of the proposed works within the Lower Slaney Estuary and within the Slaney River Valley SAC and Wexford Harbour and Slobs SPA;
- The potential for in combination effects with other plans and projects;
- Potential underwater noise disturbance from cable percussion boring, rotary core boreholes and sub-bottom profiling;
- Potential visual and above-water noise disturbance from vessels, barge operations, survey activities and personnel;
- Potential localised physical disturbance of the riverbed, and
- Potential for water quality effects arising from ground investigation and sediment sampling activities,

it was concluded that the proposed maritime usage by Wexford County Council, County Hall, Carricklawn, Wexford, Y35 WY93, to carry out marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000 (Schedule 7(3)) at the Lower Slaney Estuary, Ferrycarrig, Co. Wexford (MUL260005), will require Stage 2 appropriate assessment. It cannot be excluded, on the basis of objective scientific information, that the proposed project, either individually or in combination with other plans or projects, will have a significant effect on a European site.

Signature and date of AQUAFACT staff member who prepared the report on behalf of MARA	[redacted] Aisling Hearty Principal Ecologist - AQUAFACT	10/09/2026
Signature and Date of Decision Maker	[redacted] Dr. Alison McCarthy Senior Marine Advisor Maritime Usage Licensing and Planning Advisory Directorate	18/09/2026

APPENDIX B
EUROPEAN SITE DESCRIPTIONS

1 Slaney River Valley SAC

Qualifying Interests

[1130] Estuaries

[1140] Mudflats and sandflats not covered by seawater at low tide

[1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

[1410] Mediterranean salt meadows (Juncetalia maritimi)

[3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

[91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles

[91E0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)

[1029] Margaritifera margaritifera (Freshwater Pearl Mussel)

[1095] Petromyzon marinus (Sea Lamprey)

[1096] Lampetra planeri (Brook Lamprey)

[1099] Lampetra fluviatilis (River Lamprey)

[1103] Alosa fallax fallax (Twaite Shad)

[1106] Salmo salar (Salmon)

[1355] Lutra lutra (Otter)

[1365] Phoca vitulina (Harbour Seal)

Site Overview

This site comprises the freshwater stretches of the River Slaney as far as the Wicklow Mountains; a number of tributaries, the larger of which include the Bann, Boro, Glasha, Clody, Derry, Derreen, Douglas and Carrigower Rivers; the estuary at Ferrycarrig; and Wexford Harbour. The site flows through the Counties of Wicklow, Wexford and Carlow. Towns along the site but not within it include Baltinglass, Hacketstown, Tinahely, Tullow, Bunclody, Camolin, Enniscorthy and Wexford. The river is up to 100 m wide in places and is tidal at the southern end from Edermine Bridge below Enniscorthy. In the upper and central regions almost as far as the confluence with the Derry River the geology consists of granite. Above Kilcarry Bridge, the Slaney has cut a gorge into the granite plain. The Derry and Bann Rivers are bounded by a narrow line of uplands which corresponds to schist outcrops. Where these tributaries cut through this belt of hard rocks they have carved deep gorges, more than two miles long at Tinahely and Shillelagh. South of Kildavin the Slaney flows through an area of Ordovician slates and grits.

Floating river vegetation is found along much of the freshwater stretches within the site. Species present here include Pond Water-crowfoot (Ranunculus peltatus), other water-crowfoot species, Canadian Pondweed (Elodea canadensis), Broad-leaved Pondweed (Potamogeton natans), water-milfoils (Myriophyllum spp.), Common Club-rush (Scirpus lacustris), water-starworts (Callitriche spp.), Hemlock Water-dropwort (Oenanthe crocata), Fine-leaved Water-dropwort (O. aquatica), Common Duckweed (Lemna minor), Yellow Water-lily (Nuphar lutea), Unbranched Bur-reed (Sparganium emersum) and the moss Fontinalis antipyretica. Two rare aquatic plant species which are legally protected under the Flora (Protection) Order, 2015, have been recorded in this site: Short-leaved Water-starwort (Callitriche

truncata), a very rare, small aquatic herb found nowhere else in Ireland, and Opposite-leaved Pondweed (Groenlandia densa).

Good examples of wet woodland are found associated with Macmine marshes, along the banks of the Slaney and its tributaries, and within reedswamps. Rusty Willow (Salix cinerea subsp. oleifolia) scrub and pockets of wet woodland dominated by Alder (Alnus glutinosa) have become established in places. Ash (Fraxinus excelsior) and Downy Birch (Betula pubescens) are common in the latter and the ground flora is typical of wet woodland, with Meadowsweet (Filipendula ulmaria), Wild Angelica (Angelica sylvestris), Yellow Iris (Iris pseudacorus), horsetails (Equisetum spp.) and occasional tussocks of Greater Tussock-sedge (Carex paniculata). These woodlands have been described as two types: one is quite eutrophic, dominated by willow and subject to a tidal influence; while the other is flushed or spring-fed, subject to waterlogging but not to flooding, and dominated by Alder and Ash.

Old oak woodlands are best represented at Tomnafinnoge, though patches are present throughout the site. At Tomnafinnoge the wood is dominated by mature, widely spaced Sessile Oak (Quercus petraea), which were planted around 1700, with some further planting in 1810. There is now a varied age structure with over-mature, mature and young trees. The open canopy permits light to reach the forest floor and encourages natural regeneration of Sessile Oak. As well as Sessile Oak, the wood includes occasional Beech (Fagus sylvatica), birch (Betula sp.), Rowan (Sorbus aucuparia) and Scots Pine (Pinus sylvestris).

The shrub layer is well-developed with Hazel (Corylus avellana) and Holly (Ilex aquifolium) occurring. The ground layer consists of Great Wood-rush (Luzula sylvatica) and Bilberry (Vaccinium myrtillus), with some Bracken (Pteridium aquilinum) and Bramble (Rubus fruticosus agg.). Herbaceous species in the ground layer include Primrose (Primula vulgaris), Wood-sorrel (Oxalis acetosella), Common Cow-wheat (Melampyrum pratense) and Bluebell (Hyacinthoides non-scripta). Many of the trees carry an epiphytic flora of mosses, Polypody (Polypodium vulgare), and lichens such as Usnea comosa, Evernia prunastri, Ramalina spp. and Parmelia spp.

Tomnafinnoge Wood is a remnant of the ancient Shillelagh oak woods, and it appears that woodland has always been present on the site. In the past, the wood was managed as a Hazel coppice with Oak standards, a common form of woodland management in England but not widely practised in Ireland. The importance of the woodland lies in the size of the trees, their capacity to regenerate, their genetic continuity with ancient woodland and their historic interest. The nearest comparable stands are at Abbeyleix, Co. Laois and Portlaw, Co. Waterford.

Below Enniscorthy there are several areas of woodland with a mixed canopy of oak, Beech, Sycamore (Acer pseudoplatanus), Ash and generally a good diverse ground flora. Near the mouth of the river at Ferrycarrig is a steep south-facing slope covered with oak woodland. Holly and Hazel are the main species in the shrub layer and a species-rich ground flora typical of this type of oak woodland has abundant ferns (Dryopteris filix-mas, Polystichum setiferum and Phyllitis scolopendrium) and mosses (Thuidium tamariscinum, Mnium hornum and Eurynchium praelongum). North of Bunclody, the river valley still has a number of dry woodlands though these have mostly been managed by the estates, with the introduction of Beech and occasional conifers. The steeper sides are covered in a thick scrub from which taller trees protrude.

At the southern end of the site, the Red Data Book species Yellow Archangel (Lamiastrum galeobdolon) occurs. Three more Red Data Book species have also been recorded from the site: Blue Fleabane (Erigeron acer), Basil Thyme (Acinos arvensis), and Small Cudweed (Logfia minima). Basil Thyme and

Small Cudweed are protected under the Flora (Protection) Order, 2015. A nationally rare species, Summer Snowflake (Leucojum aestivum), is also found within the site.

Mixed woodlands occur at Carrickduff and Coolaphuca in Bunclody. Oak trees, which make up the greater part of the canopy, were originally planted and at the present time are not regenerating actively. In time, if permitted, the woodland will probably become dominated by Beech. A fair number of Yew (Taxus baccata) trees have also reached a large size and these, together with Holly, give to the site some of the appearance of a south-western oak wood.

The site is considered to contain a very good example of the extreme upper reaches of an estuary. Tidal reedbeds with wet woodland are present in places. The fringing reed communities support Sea Club-rush (Scirpus maritimus), Grey Club-rush (S. tabernaemontani) and abundant Common Reed (Phragmites australis). Other species occurring are Bulrush (Typha latifolia), Reed Canary-grass (Phalaris arundinacea) and Branched Bur-reed (Sparganium erectum). The reedswamp is extensive around Macmine, where the river widens and there are islands with swamp and marsh vegetation. Further south of Macmine are expanses of intertidal mudflats and sandflats and shingle shore often fringed with a narrow band of saltmarsh and brackish vegetation. Narrow shingle beaches up to 10 m wide occur in places along the river banks and are exposed at low tide. Upslope the shingle is sometimes colonised by Saltmarsh Rush (Juncus gerardii), Townsend's Cord-grass (Spartina townsendii), Common Saltmarsh-grass (Puccinellia maritima), Sea Aster (Aster tripolium), Hemlock Water-dropwort and the non-native and invasive Himalayan Balsam (Impatiens glandulifera).

The salt marsh at Castlebridge is dominated by Mediterranean salt meadows. The main community is characterized by the presence of Sea Rush (Juncus maritimus). Red Fescue (Festuca rubra) and Creeping Bent-grass (Agrostis stolonifera) are both abundant within this vegetation type. Other species present include Autumn Hawkbit (Leontodon autumnalis), Sea Milkwort (Glaux maritima), Silverweed (Potentilla anserina), Long-bracted Sedge (Carex extensa), Parsley Water-dropwort (Oenanthe lachenalii), Curled Dock (Rumex crispus), Sea Arrowgrass (Triglochin maritima), Smooth Sow-thistle (Sonchus oleraceus), Sea Plantain (Plantago maritima), Wild Celery (Apium graveolens), Spear-leaved Orache (Atriplex prostrata), White Clover (Trifolium repens), Sea Aster and Saltmarsh Rush. These species vary in cover values and Saltmarsh Rush may occasionally be dominant. Species such as Hard-grass (Parapholis strigosa) and Common Saltmarsh-grass are found along some of the tracks, while Common Saltmarsh-grass is also more common around the mouths of the creeks and along some of the drainage channels.

The marsh is perched on ground that is bisected by a number of channels which extend a considerable distance inland. The site is notable for the presence of Borrer's Saltmarsh-grass (Puccinnellia fasciculata), which is found along the cattle tracks of the marsh. Another notable feature is the transition from saltmarsh to brackish marsh communities, which is quite extensive and diverse. The marsh is generally in good condition.

A significant area of Atlantic salt meadows also occurs at Castlebridge. This habitat is characterised by the presence of grassy upper saltmarsh vegetation communities dominated by Red Fescue and/or Creeping Bent-grass. Other species present include Saltmarsh Rush, Sea Milkwort (Glaux maritima), Sea Aster, Sea Arrowgrass (Triglochin maritimum), Sea Plantain, Common Scurvygrass (Cochlearia officinalis), and Curled Dock (Rumex crispus). Sea Rush may be present in this habitat and has cover values between 0-10%.

Wexford Harbour is an extensive, shallow estuary which dries out considerably at low tide exposing large expanses of mudflats and sandflats. Within these habitats four biological community complexes have been recorded: estuarine muds dominated by polychaetes and crustaceans community complex; sand dominated by polychaetes community complex; mixed sediment community complex; and fine sand with Spiophanes bombyx community complex. The harbour is largely sheltered by the Raven Point to the north and Rosslare Point in the south.

Other habitats present within the site include species-rich marsh in which sedges such as Carex disticha, Carex riparia and Carex vesicaria are common. Among the other species found in this habitat are Yellow Iris, Water Mint (Mentha aquatica), Purple Loosestrife (Lythrum salicaria) and Soft Rush (Juncus effusus). Extensive marshes occur to the west of Castlebridge associated with the tidal areas of the River Sow.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, including Sea Lamprey, River Lamprey and Brook Lamprey, Otter, Salmon, small numbers of Freshwater Pearl Mussel, and in the tidal stretches, Twaite Shad. A survey of the Derreen River in 1995 estimated the population of Freshwater Pearl Mussel at about 3,000 individuals. This is a significant population, especially in the context of eastern Ireland. The Slaney is primarily a spring salmon fishery and is regarded as one of the top rivers in Ireland for early spring fishing. The upper Slaney and tributary headwaters are very important for spawning. The site supports regionally significant numbers of Common Seal. This Annex II species occurs year-round in Wexford Harbour where several sandbanks are used for breeding, moulting and resting activity. At least 27 Common Seal regularly occur within the site.

The site is of high ornithological importance also, with internationally important populations of Mute Swan (300), Light-bellied Brent Goose (200), Bar-tailed Godwit (1,843) and Black-tailed Godwit (350) occurring, all figures being average peaks for the five winters 1995/96-99/2000. There are at least a further 18 species of wintering waterfowl which occur in numbers of national importance, i.e. Great-crested Grebe (123), Cormorant (443), Shelduck (903), Teal (800), Scaup (416), Goldeneye (151), Red-breasted Merganser (226), Oystercatcher (1,800), Golden Plover (3,000), Grey Plover (1,412), Lapwing (5,000), Knot (566), Sanderling (262), Dunlin (3,037), Curlew (1,300), Redshank (535), Black-headed Gull (6,136) and Lesser Black-backed Gull (1,036). Several of the above populations represent substantial proportions of the national totals, especially Shelduck (6.1%), Scaup (5.9%), Red-breasted Merganser (5.6%), Grey Plover (18.8%, the top site in the country) and Black-headed Gull (6.1%).

A nesting colony of Little Egret has recently become established within the site (12+ pairs in 2003) and birds are present in the area throughout the year. The sheltered estuarine habitat to the west of Wexford Bridge is the favoured location. Another very localised breeding species, Reed Warbler, is well established within the swamp vegetation along the River Slaney and on the South Slob (estimated as at least 10 pairs). The River Slaney supports typical riparian species, including Dipper and Kingfisher.

The site supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger, Irish Hare and Daubenton's Bat. Common Frog (Rana temporaria), another Red Data Book species, also occurs within the site.

Agriculture is the main land use. Arable crops are important. Improved grassland and silage account for much of the remainder. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within it. Run-off is undoubtedly occurring, as some of the fields slope steeply directly to the river bank. In

addition, cattle have access to the river bank in places. Fishing is a main tourist attraction along stretches of the Slaney and its tributaries, and there are a number of Angler Associations, some with a number of boats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place. There are some gravel pits along the river below Bunclody and many of these are active. There is a large landfill site adjacent to the river close to Hacketstown and at Killurin. Boating, bait-digging and fishing occur in parts of Wexford Harbour.

Waste water outflows, runoff from intensive agricultural enterprises, a meat factory at Clohamon, a landfill site adjacent to the river, and further industrial development upstream in Enniscorthy and in other towns could all have potential adverse impacts on the water quality unless they are carefully managed. The spread of exotic species is reducing the quality of the woodlands.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as important numbers of wintering wildfowl including some species listed on Annex I of the E.U. Birds Directive. The presence of wet and broadleaved woodlands increases the overall habitat diversity and the occurrence of a number of Red Data Book plant and animal species adds further importance to the site. Overall it is of considerable conservation significance.

2 Wexford Harbour and Slobs SPA

Qualifying Interests

[A004] Little Grebe (Tachybaptus ruficollis)

[A005] Great Crested Grebe (Podiceps cristatus)

[A017] Cormorant (Phalacrocorax carbo)

[A028] Grey Heron (Ardea cinerea)

[A037] Bewick's Swan (Cygnus columbianus bewickii)

[A038] Whooper Swan (Cygnus cygnus)

[A046] Light-bellied Brent Goose (Branta bernicla hrota)

[A048] Shelduck (Tadorna tadorna)

[A052] Teal (Anas crecca)

[A053] Mallard (Anas platyrhynchos)

[A054] Pintail (Anas acuta)

[A062] Scaup (Aythya marila)

[A067] Goldeneye (Bucephala clangula)

[A069] Red-breasted Merganser (Mergus serrator)

[A082] Hen Harrier (Circus cyaneus)

[A125] Coot (Fulica atra)

[A130] Oystercatcher (Haematopus ostralegus)

[A140] Golden Plover (Pluvialis apricaria)

[A141] Grey Plover (Pluvialis squatarola)

[A142] Lapwing (Vanellus vanellus)

[A143] Knot (Calidris canutus)

[A144] Sanderling (Calidris alba)

[A149] Dunlin (Calidris alpina)

[A156] Black-tailed Godwit (Limosa limosa)

[A157] Bar-tailed Godwit (Limosa lapponica)

[A160] Curlew (Numenius arquata)

[A162] Redshank (Tringa totanus)

[A179] Black-headed Gull (Chroicocephalus ridibundus)

[A183] Lesser Black-backed Gull (Larus fuscus)

[A395] Greenland White-fronted Goose (Anser albifrons flavirostris)

[A855] Wigeon (Mareca penelope)

[A885] Little Tern (Sternula albifrons)

[A999] Wetland and Waterbirds

Site Overview

Wexford Harbour is the lowermost part of the estuary of the River Slaney, a major river that drains much of the south-east region. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The seaward boundary extends from the Rosslare peninsula in the south to the area just west of The Raven Point in the north. Shallow marine water is a principal habitat, but at low tide extensive areas of intertidal flats are exposed. These vary from rippled sands in exposed areas to sandy-muds in the more sheltered areas, especially at Hopeland and the inner estuary to the west of Wexford Bridge. The flats support a rich macro-invertebrate fauna, including the bivalves Cockle (Cerastoderma edule), Baltic Tellin (Macoma balthica) and Peppery Furrow-shell (Scrobicularia plana), the polychaetes Lugworm (Arenicola marina), Catworm (Nepthys hombergi) and Ragworm (Hediste diversicolor) and the crustacean Corophium volutator. Beds of mussels (Mytilus edulis) also occur. Salt marshes fringe the intertidal flats, especially in the sheltered areas such as Hopeland and towards Castlebridge. The Slobs are two flat areas of farmland, mainly arable and pasture grassland, empoldered behind 19th century sea walls. The lands are drained by a network of channels which flow into two central channels, in parts several hundred metres in width. Water from the channels is pumped into the sea with electric pumps. The channels often support swamp vegetation. The river section of the site is extensive, extending to Enniscorthy, a distance of almost 20 km from Wexford town. It is noticeably tidal as far as Edermine Bridge but with tidal influence right up to Enniscorthy. In places, such as the Macmine Marshes, it is several hundreds of metres wide and here reedswamp is well developed.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Bewick's Swan, Whooper Swan, Greenland White-fronted Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Scaup, Goldeneye, Red-breasted Merganser, Hen Harrier, Coot, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Lesser Black-backed Gull and Little Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of international importance for several species of waterbirds but also because it regularly supports well in excess of 20,000 waterbirds (average peak of 49,030 for the five winters 1996/97-2000/01). Wexford Harbour and Slobs is one of the top three sites in the country for numbers and diversity of wintering birds. The combination of estuarine habitats, including shallow waters for grebes, diving duck and seaduck, and the farmland of the polders, which include freshwater drainage channels, provides optimum feeding and roost areas for a wide range of species. Of particular importance is that it is one of the two most important sites in the world for Greenland White-fronted Goose (9,353) (all given figures for species are average peaks for the five winters 1995/96-1999/00). The geese feed almost entirely within the Slobs and roost at The Raven (a separate SPA). The site also has internationally important populations of Mute Swan (543), Light-bellied Brent Goose (1,469), Bar-tailed Godwit (1,696) and Black-tailed Godwit (790).

There are at least a further 26 species of wintering waterbirds which occur in numbers of national importance, i.e. Great Crested Grebe (117), Little Grebe (82), Cormorant (495), Grey Heron (52), Whooper Swan (100), Bewick's Swan (191), Shelduck (753), Wigeon (2,752), Teal (1,538), Mallard (3,290), Pintail (66), Scaup (339), Goldeneye (182), Red-breasted Merganser (209), Coot (351), Oystercatcher (1,493), Golden Plover (5,013), Grey Plover (1,279), Lapwing (11,826), Knot (453), Sanderling (210), Dunlin (2,485), Curlew (1,771), Redshank (555), Black-headed Gull (5,977) and Lesser Black-backed Gull (1,086). Other species that use the site include Ringed Plover (69), Turnstone (41), Greenshank (12), Shoveler (24), Tufted Duck (114), Pochard (218), Common Gull (100+) and Little Egret. Several of the above populations represent substantial proportions of the national totals, especially Shelduck (5.2%), Scaup (5.3%), Red-breasted Merganser (5.7%) and Grey Plover (19.9% and the top site in the country). The Slobs is the most important and indeed one of the few sites in the country which supports a regular flock of Bewick's Swan. Numbers of wintering birds are often swelled by hard-weather movements from Britain and Europe, notably Golden Plover and Lapwing.

The site is a regular location for scarce passage waders such as Ruff, Spotted Redshank and Green Sandpiper, as well as Curlew Sandpiper in varying numbers. The rare Wood Sandpiper is seen each year, mainly in autumn.

Short-eared Owl and Hen Harrier are regular visitors to the Slobs during winter. Of particular note is the presence of a Hen Harrier communal roost site with a five-year mean peak count of five birds (2005/06 to 2009/10).

The site is important for Little Tern as it can hold a nationally important breeding colony (12 pairs in 1995 and 30 pairs in 2000). The Slobs support a nesting colony of Tree Sparrow, a very localised species in Ireland that is listed in the Irish Red Data Book. Another very localised breeding species, Reed Warbler, is well established within the swamp vegetation along the River Slaney and on the South Slob (estimated as at least 10 pairs).

A range of duck species breed, including Teal, Tufted Duck and, probably in most years, Shoveler.

Wexford Harbour and Slobs SPA is one of the most important ornithological sites in the country, supporting internationally important populations of Greenland White-fronted Goose, Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit. In addition, it has 26 species of wintering waterbirds with populations of national importance and nationally important numbers of breeding Little Tern. Also of significance is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Little Egret, Whooper Swan, Bewick's Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Bar-tailed Godwit, Ruff, Wood Sandpiper, Little Tern and Short-eared Owl. The

site is an important centre for research, education and tourism. Wexford Wildfowl Reserve, located within Wexford Harbour and Slobs SPA, is a Ramsar Convention site, a Biogenetic Reserve and a Statutory Nature Reserve. Parts of the Wexford Harbour and Slobs SPA are also designated as Wildfowl Sanctuaries.

3 The Raven SPA

Qualifying Interests

[A001] Red-throated Diver (Gavia stellata)

[A017] Cormorant (Phalacrocorax carbo)

[A065] Common Scoter (Melanitta nigra)

[A141] Grey Plover (Pluvialis squatarola)

[A144] Sanderling (Calidris alba)

[A395] Greenland White-fronted Goose (Anser albifrons flavirostris)

[A999] Wetland and Waterbirds

Site Overview

The marine waters off the coast of County Wexford mark the boundary between the Irish and Celtic Seas. These waters constitute a valuable feeding resource for the seabirds that return every spring to Wexford's coastal and island colonies to breed. Outside of the summer months these relatively shallow coastal waters provide safe feeding and roosting opportunities for a range of marine birds overwintering here or on passage.

The Seas off Wexford cSPA extends offshore along the majority of the County Wexford coastline and is approximately 3,054 km² in area. This SPA abuts, and is ecologically connected to, four breeding seabird SPAs, namely Lady's Island Lake SPA, Wexford Harbour and Slobs SPA, Keeragh Islands SPA and Saltee Islands SPA.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Common Scoter, Red-throated Diver, Fulmar, Manx Shearwater, Gannet, Shag, Cormorant, Kittiwake, Black-headed Gull, Mediterranean Gull, Lesser Black-backed Gull, Herring Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Sandwich Tern, Puffin, Razorbill and Guillemot.

The breeding seabird species listed (or, in the case of Mediterranean Gull at Lady's Island Lake SPA, under consideration for listing) for the SPAs which abut the Seas off Wexford cSPA are: Little Tern (Wexford Harbour and Slobs SPA), Roseate Tern (Lady's Island Lake SPA), Common Tern (Lady's Island Lake SPA), Arctic Tern (Lady's Island Lake SPA), Sandwich Tern (Lady's Island Lake SPA), Black-headed Gull (Lady's Island Lake SPA), Mediterranean Gull (Lady's Island Lake SPA), Cormorant (Keeragh Islands SPA, Saltee Islands SPA), Fulmar (Saltee Islands SPA), Gannet (Saltee Islands SPA), Shag (Saltee Islands SPA), Lesser Black-backed Gull (Saltee Islands SPA), Herring Gull (Saltee Islands SPA), Kittiwake (Saltee Islands SPA), Guillemot (Saltee Islands SPA), Razorbill (Saltee Islands SPA) and Puffin (Saltee Islands SPA).

Based on a summer aerial marine bird survey conducted in 2021, an estimated 28,611 individuals occurred within this SPA. The following species formed a significant proportion (i.e. ≥1%) of the overall marine bird assemblage: Guillemot, 47.2%; Manx Shearwater, 28.9%; Razorbill, 9.6%; Sandwich Tern, 3.1%; Gannet, 2.7%; Herring Gull, 2.0%; Common Tern, 1.8%; and Arctic Tern, 1.4%.

Based on a series of surveys focused on the northern section of this SPA during the non-breeding period of 2018/2019, population estimates of up to 1,078 Common Scoter, 499 Red-throated Diver and 180 Cormorant were recorded, all of which are of national importance.

4 Seas off Wexford SPA

Qualifying Interests

[A001] Red-throated Diver (Gavia stellata)

[A009] Fulmar (Fulmarus glacialis)

[A013] Manx Shearwater (Puffinus puffinus)

[A016] Gannet (Morus bassanus)

[A017] Cormorant (Phalacrocorax carbo)

[A018] Shag (Phalacrocorax aristotelis)

[A065] Common Scoter (Melanitta nigra)

[A176] Mediterranean Gull (Larus melanocephalus)

[A179] Black-headed Gull (Chroicocephalus ridibundus)

[A183] Lesser Black-backed Gull (Larus fuscus)

[A184] Herring Gull (Larus argentatus)

[A188] Kittiwake (Rissa tridactyla)

[A192] Roseate Tern (Sterna dougallii)

[A193] Common Tern (Sterna hirundo)

[A194] Arctic Tern (Sterna paradisaea)

[A199] Guillemot (Uria aalge)

[A200] Razorbill (Alca torda)

[A204] Puffin (Fratercula arctica)

[A863] Sandwich Tern (Thalasseus sandvicensis)

[A885] Little Tern (Sternula albifrons)

Site Overview

The marine waters off the coast of County Wexford mark the boundary between the Irish and Celtic Seas. These waters constitute a valuable feeding resource for the seabirds that return every spring to Wexford's coastal and island colonies to breed. Outside of the summer months these relatively shallow coastal waters provide safe feeding and roosting opportunities for a range of marine birds overwintering here or on passage.

The Seas off Wexford cSPA extends offshore along the majority of the County Wexford coastline and is approximately 3,054 km² in area. This SPA abuts, and is ecologically connected to, four breeding seabird SPAs, namely Lady's Island Lake SPA, Wexford Harbour and Slobs SPA, Keeragh Islands SPA and Saltee Islands SPA.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Common Scoter, Red-throated Diver, Fulmar, Manx Shearwater, Gannet, Shag, Cormorant, Kittiwake, Black-headed Gull, Mediterranean Gull, Lesser Black-backed Gull, Herring Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Sandwich Tern, Puffin, Razorbill and Guillemot.

The breeding seabird species listed (or, in the case of Mediterranean Gull at Lady's Island Lake SPA, under consideration for listing) for the SPAs which abut the Seas off Wexford cSPA are: Little Tern (Wexford Harbour and Slobs SPA), Roseate Tern (Lady's Island Lake SPA), Common Tern (Lady's Island Lake SPA), Arctic Tern (Lady's Island Lake SPA), Sandwich Tern (Lady's Island Lake SPA), Black-headed Gull (Lady's Island Lake SPA), Mediterranean Gull (Lady's Island Lake SPA), Cormorant (Keeragh Islands SPA, Saltee Islands SPA), Fulmar (Saltee Islands SPA), Gannet (Saltee Islands SPA), Shag (Saltee Islands SPA), Lesser Black-backed Gull (Saltee Islands SPA), Herring Gull (Saltee Islands SPA), Kittiwake (Saltee Islands SPA), Guillemot (Saltee Islands SPA), Razorbill (Saltee Islands SPA) and Puffin (Saltee Islands SPA).

Based on a summer aerial marine bird survey conducted in 2021, an estimated 28,611 individuals occurred within this SPA. The following species formed a significant proportion (i.e. ≥1%) of the overall marine bird assemblage: Guillemot, 47.2%; Manx Shearwater, 28.9%; Razorbill, 9.6%; Sandwich Tern, 3.1%; Gannet, 2.7%; Herring Gull, 2.0%; Common Tern, 1.8%; and Arctic Tern, 1.4%.

Based on a series of surveys focused on the northern section of this SPA during the non-breeding period of 2018/2019, population estimates of up to 1,078 Common Scoter, 499 Red-throated Diver and 180 Cormorant were recorded, all of which are of national importance.

5 Blackwater Bank SAC

Qualifying Interests

[1110] Sandbanks which are slightly covered by sea water all the time

[1351] Phocoena phocoena (Harbour Porpoise)

Site Overview

Blackwater Bank SAC consists of a series of sandbanks running roughly parallel to the coastline of Co. Wexford. The total area of this site is approximately 12,407 ha. This designation includes the Lucifer Bank, Blackwater Bank and Moneyweights Bank. These features are at the southern end of a series of offshore sandbanks that run along the eastern seaboard of Ireland as far north as Co. Dublin.

The sandbanks in this site form a series of banks from Cahore Point, in the north, extending almost as far southwards as Rosslare, Co. Wexford. These features range from 2-4 km from the shoreline. Offshore sandbanks are generally formed from varying sediment fractions that range from cobbles to fine sand. The sediment surface is often rippled through the action of currents and storms and builds

up into sand waves that may measure more than 1 m in height and several metres in width. Some of the banks shoal during low tide but are generally between 4-8 m below the sea surface at low tide. These banks are characterised predominantly by fine sand to medium sand with smaller percentages of very fine sand. Previous surveys indicated an area of high hydrodynamic activity with strong, tidally induced current speeds operating. Such currents do not allow for the settling out of finer particles of organic and inorganic matter. This type of current regime also tends to make the sediments quite mobile, with material being transported over some distance during strong phases of the tidal cycle. Such areas are characterised by low species densities. Low species numbers and densities in such habitat are probably due to the inhospitable nature of the environment, i.e. mobile sands, which demand specialised lifestyles for animals to either cope with, or escape from, sand abrasion.

The species recorded from the area are typical of sandy coastal habitats. A total of 35 species, from four phyla, were collected. The most abundant species were crustaceans (Bathyporeia elegans, Pontocrates altamarinus, Portumnus latipes and Urothoe elegans), segmented worms (Spio armata, Scolelepis squamata, Nephtys longosetosa, Nephtys cirrosa, Magelona mirabilis, Spiophanes bombyx, Magelona johnstoni, Gastrosaccus spinifer and Levinsenia gracilis) and the mollusc Parvicardium minimum. Analysis of the species has split the various faunal communities into two distinct assemblages: the 'infralittoral mobile clean sand with sparse fauna' and 'Bathyporeia spp. in infralittoral sand'.

The site is of conservation importance for its submerged sandbanks, a habitat that is listed on Annex I of the E.U. Habitats Directive.

6 Carnsore Point SAC

Qualifying Interests

[1140] Mudflats and sandflats not covered by seawater at low tide

[1170] Reefs

[1351] Phocoena phocoena (Harbour Porpoise)

Site Overview

This site is situated in the south-east of Co. Wexford and comprises the area of sea and underlying bedrock and sediments off Carnsore Point. The coastal boundary follows the high water mark from just north of Greenore Point to Tacumshin Lake; the seaward boundary follows a line just to the west of Black Rock, south of the Barrels Rocks, east of the Bailies and as far north as South Long light. The bedrock of the site is of granite, felsite and other intrusive rocks rich in silica. The site is exposed to the prevailing wind and swells from the west. Tidal streams tend to be moderate but are strong in some areas. Offshore, Barrels Rocks are extremely exposed to the full force of Atlantic swells.

Most of Carnsore Point SAC comprises rocky reefs that are strewn with boulders, cobbles and patches of sand, both on the shore and underwater. These intertidal and subtidal reef communities are typical of areas that are very exposed to moderately exposed wave action. There are also areas of intertidal mud and sandflats in the site.

The reef habitat at the site can be categorised into three community types: sheltered to moderately exposed intertidal reef community complex, exposed subtidal reef dominated by a faunal community complex, and Laminaria-dominated community complex.

The intertidal reef to the east of Carnsore Point is moderately exposed to wave action. It has an extensive area of granite with the limpet Patella vulgata, the topshell Osilinu (=Monodonta) lineatus, and abundant juvenile barnacles in the upper shore. The mid shore has a poorly defined band of the brown alga Fucus vesiculosus, followed by luxuriant Knotted Wrack (Ascophyllum nodosum), with the epiphyte Polysiphonia lanosa. The low shore is characterised by Fucus serratus, with occasional Laminaria digitata and the green alga Cladophora rupestris. These communities are typical for this type of shore.

There is a good example of a subtidal reef community very exposed to wave action in shallow water at Barrels Rocks. This is characterized by abundant Mytilus edulis, with the brown alga Alaria esculenta, an understorey of pink coralline algal crusts and Corallina officinalis with the hydroid Tubularia sp. on steep surfaces. Also in shallow water, but in areas with a little less exposure to wave action, a species-rich (81-110 species) kelp park of Laminaria hyperborea is found, with an understorey of hydroids, sponges, and bryozoans. At two sites this community is unusual. At south-east of Splagh Rock the understorey is very similar to the sea squirt community of Stolonica socialis and Polyclinum aurantium, whereas north-east of Terchen the bivalve Musculus discors carpets much of the area, along with a variety of sponges, hydroids, sea squirts and bryozoans.

In deeper water at depths of 11-30 m there are excellent examples of the sea squirt community dominated by Polyclinum aurantium, with the bryozoan Flustra foliacea. Stolonica socialis may also be present in this community. There is an unusual variation of this community where the dominant sea squirt is Polycarpa scuba (= rustica) and the bryozoan Flustra foliacea is absent, and at another site Distomus variolosus is the most abundant sea squirt. At 23 m, low-lying rock surrounded by coarse sand is covered by the bivalve Musculus discors, which is considered to be an uncommon community. A number of species with a limited distribution in Ireland occur at two or more sites within the area. These are the sponge Tethyspira spinosa, the anemone Cataphellia brodricii and the sea squirts Distomus variolosus, Stolonica socialis, Archdistoma aggregatum and Polycarpa scuba. The sea squirt Sidnyum elegans and the recently described bryozoan Schizomavella sarniensis each occur at a single site. Tethyspira spinosa is only known from the Saltees, Hook Head and Roaringwater Bay in Ireland. Cataphellia brodricii occurs in this community and in shallow water both around the Saltee Islands and other areas in the south-east. Stolonica socialis in Ireland is only known from the south-east and north-west coasts and in Britain in the south, south-west and English Channel. Sidnyum elegans has not previously been recorded in Ireland and to date all records are from the south-east, and it has a limited distribution in Britain. Archdistoma aggregatum is known from a few sites in south-west Britain, Northern Ireland, the Saltee Islands, Carnsore Point area and south of the River Shannon Estuary. Polycarpa scuba (= rustica) is only known from the Irish Sea, English Channel and Brittany.

The littoral sediment communities of Carnsore Point are represented by a moderately exposed shore at Carne Beach, composed of intertidal sand community complex characterised by the oligochaete Tubificoides benedii, and the bivalves Macoma balthica and Scrobicularia plana, the amphipod Corophium volutator and polychaetes such as Pygospio elegans, Eteone sp., Nephtys hombergii and Hediste diversicolor.

The site is of considerable conservation significance for the presence of intertidal mud and sandflats, as well as reefs, all habitats that are listed on Annex I of the E.U. Habitats Directive.

7 Saltee Islands SAC

Qualifying Interests

[1140] Mudflats and sandflats not covered by seawater at low tide

[1160] Large shallow inlets and bays

[1170] Reefs

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

[8330] Submerged or partially submerged sea caves

[1364] Halichoerus grypus (Grey Seal)

Site Overview

This site comprises the Saltee Islands and a large area of the surrounding seas. There are two islands, Great Saltee and Little Saltee, and a constellation of islets and rocks. The islands are situated between 4 and 5 km off the south Wexford coast. As a group, they constitute a broken reef that protrudes from a seabed of sand and shell. The reef has a north-east/south-west orientation and is typically strewn with boulders, cobbles and patches of sand and gravel. Bedrock is metamorphic schist and gneiss.

The subtidal reefs at this site range from rugged bedrock with steep-sided gullies to large boulders mixed with sand or cobbles and pebbles. They range from exposed to moderately exposed to wave action. The communities present are excellent examples of those typical of tide-swept areas and many have fauna and flora that are tolerant of sand scour. The area is notable for the range of colonial sea squirts present. With the exception of only a few samples, the communities are very species-rich, with samples taken during the BioMar Survey having from 78 to 117 species. No other area surveyed during the BioMar Survey had so many species-rich communities.

In shallow water the reefs support a forest of mixed kelp species, with scour-tolerant fauna on tide-swept bedrock or a kelp forest of Laminaria hyperborea with a faunal cushion and foliose red algae. With increasing depth the kelp thins to a kelp park. The kelp understorey ranges from a turf of hydroids, bryozoans, sponges and numerous colonial sea squirts, to a community characterised by the bryozoan Flustra foliacea or an understorey of foliose red algae. On the sides of boulders a community with Deadman's Fingers (Alcyonium digitatum), the keel worm Pomatoceros triqueter and algal and bryozoan crusts is found.

In deeper water (15-30 m) animal-dominated reef communities occur. The most notable of these is a community dominated by the sea squirt Stolonica socialis and the bryozoan Flustra foliacea. This community is rich in colonial sea squirts, in which Archidistoma aggregatum, Sidnyum elegans and Distomus variolosus, and the solitary Pyura squammata, occur. Stolonica socialis is only known from the south-east and north-west of Ireland, while S. elegans has not previously been recorded in Ireland. Distomus variolosus is only known from between Galway and Tralee Bay on the west coast, and the east and south-east coasts of Ireland. Pyura squammata appears to have a widespread but local distribution in Ireland. The sea anemone Cataphellia brodricii occurs in this community and in shallow water, both around the Saltee Islands and in other areas in the south-east. The only other records for this species are from Roaringwater Bay, Co. Cork. Where the bedrock is steep or large boulders are present the community may be formed of cushion sponges, branching sponges, massive sponges, Nemertesia hydroids, the rose coral Pentapora foliacea, or Alcyonium digitatum. Beds of the brittlestars Ophiothrix fragilis and Ophiocomina nigra are also found in the area, and on very steep to vertical reefs the plumose anemone Metridium senile may be found.

Species not mentioned above, and with limited distribution in Britain and Ireland and considered to be worthy of conservation, include the sponges Tethyspira spinosa and Plocamilla coriacea, the hydroids Aglaophenia acacia, Tamarisca tamarisca, Halecium muricatum and Sertularella gaudichaudi, the sea slug Okenia aspersa, the bryozoan Schizomavella sarniensis and the burrowing brittlestar Amphiura securigera. The majority of these species occur in the ascidian-dominated communities and the Stolonica socialis community in particular. Tethyspira spinosa is only known from the Saltees and Roaringwater Bay in Ireland. Plocamilla coriacea is a recently described species, only recorded from the Saltees, Carnsore Point and Tuscar Rock, Co. Wexford, and Kilkieran Bay, Co. Galway. Aglaophenia acacia is a southern species and occurs at several sites around the Saltees, with only one previous record in Ireland. Prior to the BioMar Survey the only 20th century records for Halecium muricatum in Britain and Ireland were from the Isle of Man. This species is now known to occur at the Saltees and in Co. Donegal. The records for Sertularella gaudichaudi from this area are the only Irish records. The sea slug Okenia aspersa occurs at two sites in the area and these are the only recent records for Ireland. Schizomavella sarniensis is a recently described species of bryozoan and, to date in Ireland, has only been recorded from around the Saltees. The current known distribution of the burrowing brittlestar Amphiura securigera in Ireland appears to be the south-east of the country and Kenmare River, Co. Cork.

The littoral sediments of the Saltee Islands area are moderately exposed to wave action. Talitrid amphipods live under drift algae on the strand line. The mid shore is characterized by polychaete worms (Hediste diversicolor, Malacoceros fuliginosus, Spio filicornis and Arenicola marina), crustaceans (Crangon crangon) and crabs (Carcinus maenas). The low shore is characterized by the polychaete worms Spio filicornis and Lanice conchilega, the burrowing crustacean Atylus swammerdamei, crabs and bivalve molluscs (Fabulina fabula and occasional Cerastoderma edule). The sublittoral sediment around the Saltees is composed of exposed, tide-swept shelly gravel characterised by the burrowing sea cucumber Neopendactyla mixta, with hydroids and bryozoans attached to cobbles.

Both islands have exposed rocky cliffs on the south and east sides. On Great Saltee these are mostly around 30 m high, and about half this on Little Saltee. The cliffs have a typical sea cliff flora, with Thrift (Armeria maritima), Sea Campion (Silene vulgaris subsp. maritima), Sea Plantain (Plantago maritima), Sea Aster (Aster tripolium), Common Scurvygrass (Cochlearia officinalis), Rock Sea-spurrey (Spergularia rupicola), Sea Mayweed (Matricaria maritima), Red Fescue (Festuca rubra), Sea Spleenwort (Asplenium marinum) and Sea Samphire (Crithmum maritimum). Sea Stork's-bill (Erodium maritimum) also occurs, and Golden-samphire (Inula crithmoides) has been recorded in the past. Excellent displays of lichens (Ramalina spp. and Xanthoria spp.) are present. The northern and western sides of both islands are fringed with shingle and boulder shores, with small areas of intertidal sandflats. Sea caves occur at the base of the cliffs on Great Saltee. Some of these are sublittoral and some have boulder beaches at the back.

Since the abandonment of farming on the islands (apart from sheep grazing on Little Saltee), Bracken (Pteridium aquilinum) has become dominant over much of the terrestrial area and often occurs in association with Bluebells (Hyacinthoides non-scripta). Bramble (Rubus fruticosus agg.) is also frequent. Dry grassland still occurs in some of the old fields, with species such as Yorkshire-fog (Holcus lanatus), Ground Ivy (Glechoma hederacea), Common Ragwort (Senecio jacobaea), Common Nettle (Urtica dioica) and thistles (Cirsium spp.).

Several springs and seepage areas provide habitat diversity. Species present include Water-cress (Nasturtium officinale), Jointed Rush (Juncus articulatus), Bog Stitchwort (Stellaria alsine), Marsh Pennywort (Hydrocotyle vulgaris) and, in at least one location, Early Marsh-orchid (Dactylorhiza incarnata).

Great Saltee has a breeding population of Grey Seal, one of the very few in eastern Ireland. The breeding population was estimated at 571-744 individuals in 2005. A one-off moult count in 2007 gave a figure of 246 individuals.

The Saltee Islands are internationally important for their colonies of breeding seabirds. Particularly notable are the Gannets on Great Saltee (2,050 pairs in 2000), Cormorants on Little Saltee (273 pairs in 2000), Shags on both islands (265 pairs), Fulmars (525 pairs, 1998-2000), Kittiwakes (2,125 pairs in 1999), and auks: Guillemots (21,436 individuals), Razorbills (c. 4,000 individuals) and Puffins (1,822 individuals). There is also a small Manx Shearwater colony (c. 150-175 pairs) on Great Saltee. The breeding populations of large gulls have declined dramatically in recent years. The Lesser Black-backed Gull colony is still important (245 pairs), but numbers of Herring Gull (c. 50 pairs) and Great Black-backed Gull (c. 90 pairs) are now very low.

There are one or two pairs of breeding Peregrine, and one pair of Chough occur here at the eastern edge of their Irish range. Both of these species are listed on Annex I of the E.U. Birds Directive.

Great Saltee is a major site for spring and autumn landbird migration. Very large numbers of pipits, swallows, martins, thrushes, warblers and finches occur, while smaller numbers of a great variety of other species (some very rare in Ireland) have also been recorded.

The island is also a good site for migrant Lepidoptera, especially Red Admirals, Painted Ladies, Clouded Yellows, Silver Y moths and Humming-bird Hawk Moths.

This site is of high conservation importance for the occurrence of several habitats which are listed on Annex I of the E.U. Habitats Directive, of which the reefs are of exceptional quality and diversity. The site is of international importance for breeding seabirds and has two species which are listed on Annex I of the E.U. Birds Directive. In addition, the site has a breeding population of Grey Seal, an Annex II species on the E.U. Habitats Directive.

8 Saltee Islands SPA

Qualifying Interests

[A009] Fulmar (Fulmarus glacialis)

[A016] Gannet (Morus bassanus)

[A017] Cormorant (Phalacrocorax carbo)

[A018] Shag (Phalacrocorax aristotelis)

[A183] Lesser Black-backed Gull (Larus fuscus)

[A184] Herring Gull (Larus argentatus)

[A188] Kittiwake (Rissa tridactyla)

[A199] Guillemot (Uria aalge)

[A200] Razorbill (Alca torda)

[A204] Puffin (Fratercula arctica)

Site Overview

The Saltee Islands SPA is situated some 4-5 km off the coast of south Co. Wexford and comprises the two islands, Great Saltee and Little Saltee, and the surrounding seas both between them and to a distance of 500 m from them. The bedrock of the islands is of Precambrian gneiss and granite. Both islands have exposed rocky cliffs on their south and east sides, those on Great Saltee being mostly c. 30 m high and those on Little Saltee about half this height. The northern and western sides of both islands are fringed with shingle and boulder shores, backed by boulder clay cliffs, as well as small areas of intertidal sandflats. Sea caves occur at the base of the cliffs on Great Saltee.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Fulmar, Gannet, Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill and Puffin. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds.

The Saltee Islands are internationally important for holding an assemblage of over 20,000 breeding seabirds. The nationally important Gannet colony on Great Saltee has been well documented since its establishment in the 1920s and 2,446 pairs were present in 2004. The following species have populations of national importance (all counts in the 1998-2000 breeding seasons): Fulmar (520 pairs), Cormorant (273 pairs), Shag (268 pairs), Lesser Black-backed Gull (164 pairs), Herring Gull (73 pairs), Kittiwake (2,125 pairs), Guillemot (14,362 pairs), Razorbill (2,505 pairs) and Puffin (1,822 pairs). An estimated 250 pairs of Manx Shearwater occur on these islands. Seabird populations are monitored annually and large numbers of chicks, especially of Gannets, auks and Shags, are ringed.

Peregrine Falcon breeds (1-2 pairs) and Chough (1 pair) occurs at the eastern edge of its Irish range. Hen Harrier uses the site for autumn passage and overwintering.

Great Saltee is a major site for spring and autumn landbird migration and was the site for Ireland's first bird observatory. While the observatory is no longer operational, substantial numbers of migrants are still ringed annually. Large numbers of pipits, swallows and martins, thrushes, warblers and finches occur, while smaller numbers of a great variety of other species (some very rare in Ireland) are also recorded.

The Saltee Islands SPA is of international importance for breeding seabirds; it also supports populations of three species that are listed on Annex I of the E.U. Birds Directive, i.e. Peregrine, Chough and Hen Harrier. It is one of the best-documented sites in the country and is monitored annually.

9 Hook Head SAC

Qualifying Interests

[1160] Large shallow inlets and bays

[1170] Reefs

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

[1349] Tursiops truncatus (Common Bottlenose Dolphin)

[1351] Phocoena phocoena (Harbour Porpoise)

Site Overview

The areas of conservation interest at Hook Head comprise marine subtidal reefs to the south and east of the Hook Head Peninsula, and also sea cliffs from Hook Head to Baginbun and Ingard Point. The peninsula forms the eastern side of Waterford Harbour, while to the east it adjoins the estuary mouth of Bannow Bay. Hook Head itself is composed of Carboniferous limestone overlain by Devonian Old Red Sandstone and is palaeontologically of international importance.

An exposed to moderately exposed intertidal reef community complex occurs around Hook Head. Subtidally, the reefs are aligned in a north-east/south-west orientation and are typically strewn with boulders, cobbles and patches of sand and gravel. They are exposed to prevailing winds and swells from the west and tidal streams tend to be moderate but are strong in some areas. There are also a number of isolated reefs that project from a sand plain. The reefs around Hook Head have excellent examples of tide-swept communities and species richness is high in both the shallow and deep-water communities. A Laminaria-dominated community is recorded from the shallow waters around Hook Head. Deeper waters consist of echinoderm and sponge-dominated community complex types, characterised by cushion sponges, with branching sponges and the rose 'coral' Pentapora foliacea. In addition, the sponge Stryphnus ponderosa, the sea squirts Sidnyum elegans, Distomus variolosus and Stolonica socialis, and the brittlestar Amphiura securigera are present. These species have a limited distribution in Ireland. The rare red alga Schizymenia dubyi also occurs.

The sublittoral sediments within this area consist of exposed, tide-swept patches of duned gravel and moderately exposed silty sand with only weak tidal streams. The duned gravel is characterised by the burrowing sea cucumber Neopendactyla mixta and the burrowing brittlestar Amphiura securigera, whilst the silty sand is relatively barren. A. securigera has only been recorded from the south-east of Ireland, the Kenmare River, and in Northern Ireland, where it is considered rare. The coarse sediments consist of a community complex distinguished by Pisidia longicornis and mobile and epibenthic species.

The sea cliffs, which extend for a distance of approximately 15 km, are mostly low, usually not more than 10 m, though they extend up to 30 m high near Baginbun Head. Both clay and rock cliffs are represented. The vegetation of the cliffs, as well as the underlying rocky shoreline, is characterised by species such as Thrift (Armeria maritima), Rock Samphire (Crithmum maritimum), Rock Sea-lavender (Limonium binervosum), Sea Plantain (Plantago maritima), Buck's-horn Plantain (Plantago coronopus), Rock Sea-spurrey (Spergularia rupicola) and Sea Mayweed (Matricaria maritima).

The cliffs at this site are of ornithological interest for breeding Chough, Raven and Peregrine, and there is a small seabird colony, mainly of Guillemots, near Baginbun. The headland is a noted landfall point for migrants.

The waters off Hook Head are rich in marine life and are a popular dive site for SCUBA enthusiasts. Rock pools on the shore support a diverse flora and fauna.

In summary, this site is of conservation importance for its subtidal reef and shallow bay communities, and their diversity of species, as well as for the vegetated sea cliffs. These habitats are listed under the E.U. Habitats Directive. The rocky coastline is also important for a number of breeding birds, two of which are listed on Annex I of the E.U. Birds Directive.