

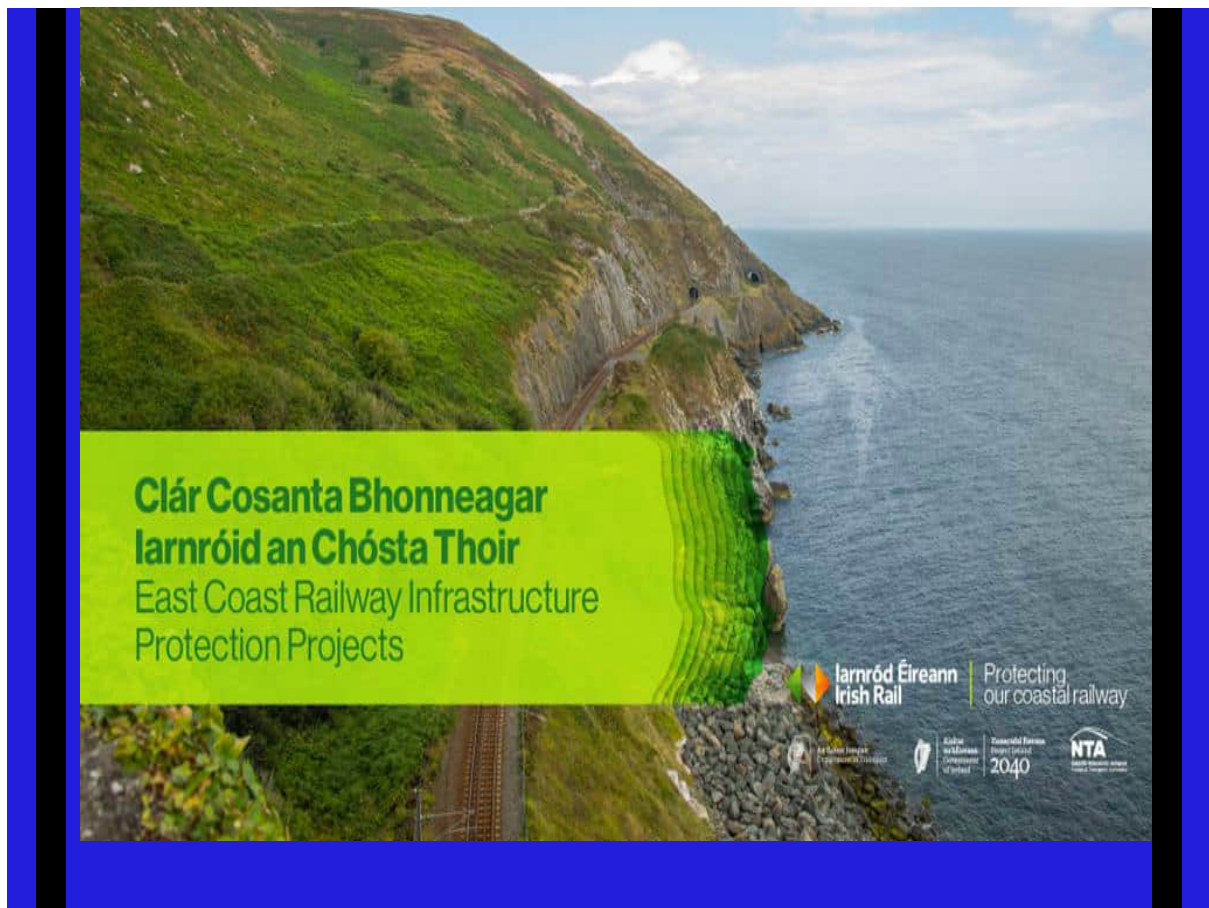
ECRIPP Pre-Works Surveys Natura Impact Statement

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Irish Rail

East Coast Railway Infrastructure Protection Projects

May 2024



ECRIPP Pre-Works Surveys Natura Impact Statement

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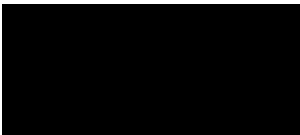
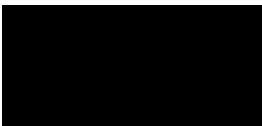
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Executive summary

Iarnród Éireann's East Coast Railway Infrastructure Protection Projects (ECRIPP) are required to defend long sections of the essential Dublin to Rosslare coastal rail line from coastal erosion and wave overtopping. . This railway corridor carries the Dublin Area Rapid Transport (DART) services and mainline rail services and runs for 167km from Dublin to Rosslare. Just under half of the route length (77km) runs adjacent to coastal or estuarine environment making it vulnerable to the impacts of coastal erosion and wave overtopping which are being exacerbated by climate change. ECRIPP is planned to defend the railway infrastructure to these risks and to boost coastal resilience in the face of a changing climate with its associated rising sea levels.

A network of protected areas for certain habitats and species of conservation importance has been established by European Union (EU) member states under the Habitats and Birds Directives (Council Directive 92/43/EEC and Directive 2009/147/EC); these areas are known as European sites.

The EU Habitats Directive (92/43/EEC) has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites. Appropriate Assessment of the implications must be made by the decision-making authority (or Competent Authority) if the project is likely to have a significant effect on a European site alone or in-combination with other plans or projects. Appropriate Assessment is a two-stage process of determining impacts to European sites which are Stage 1 Screening and Stage 2 Appropriate Assessment.

The Appropriate Assessment screening report (Appendix C) found that for the European sites listed below (which were in the vicinity of the Proposed Development), it can be concluded ,on the basis of best scientific knowledge and objective evidence, that there was no potential for the Pre-works surveys, alone or in-combination with any other plan or project, to have likely significant effects on the conservation objectives of these sites and that Appropriate Assessment was not required:

- Bray Head SAC (000714)
- The Murrough Wetlands SAC (002249)
- Wicklow Mountains SAC (002122)
- Howth Head Coast SPA (004113)
- Baldoyle Bay SPA (004016)
- Irelands Eye SPA (004117)
- Malahide Estuary SPA (004025)
- Rogerstown Estuary SPA (004015)
- Lambay Island SPA (004069)
- Skerries Islands SPA (004122)
- Rockabill SPA (004014)
- Poulaphouca Reservoir SPA (004063)

However, the conclusion of the Screening for AA is that, in the absence of mitigation measures, the following Likely Significant Effects (LSE) to undermine the conservation objectives of the following European sites cannot be excluded:

- South Dublin Bay SAC

- Mudflats and sandflats not covered by seawater at low tide [1140], annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], embryonic shifting dunes [2110]
 - o Habitat loss – temporary from GI and intertidal cores within Licence Area A
- Rockabill to Dalkey Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - o Disturbance of species during bathymetric surveys
- Lambay Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351], Grey Seal (*Halichoerus grypus*) [1364], Harbour Seal (*Phoca vitulina*) [1365]
 - o Disturbance of species during bathymetric surveys and ecology boat surveys
- Codling Fault Zone SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - o Disturbance of species during bathymetric surveys
- South Dublin Bay and River Tolka Estuary SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Oystercatcher (*Haematopus ostralegus*) [A130], Ringed plover (*Charadrius hiaticula*) [A137], Grey plover (*Pluvialis squatarola*) [A141], Knot (*Calidris canutus*) [A143], Sanderling (*Calidris alba*) [A144], Dunlin (*Calidris alpina*) [A149], Bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - o Disturbance of species during all Survey Works within intertidal and subtidal zones
- The Murrough SPA
 - Red-throated diver (*Gavia stellata*) [A001], Greylag goose (*Anser anser*) [A043], Light-bellied brent goose (*Branta bernicla hrota*) [A046], Wigeon (*Mareca penelope*) [A050], Teal (*Anas crecca*) [A052], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Herring gull (*Larus argentatus*) [A184], Little tern (*Sterna albifrons*) [A195]
 - o Disturbance of species during all Survey Works within intertidal and subtidal zones
- Dalkey Islands SPA
 - Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - o Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Head SPA
 - Kittiwake (*Rissa tridactyla*) [A188]
 - o Disturbance of species during all Survey Works within intertidal and subtidal zones
- North Bull Island SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Teal (*Anas crecca*) [A052], Pintail (*Anas acuta*) [A054], Shoveler (*Spatula clypeata*) [A056], Oystercatcher (*Haematopus ostralegus*) [A130], Golden Plover (*Pluvialis apricaria*) [A140], Grey plover (*Pluvialis squatarola*) [A141], 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], Turnstone (*Arenaria interpres*) [A169], Black-headed gull (*Chroicocephalus ridibundus*) [A179]

- Disturbance of species during all Survey Works within intertidal and subtidal zones

▪ North-West Irish Sea SPA

- Red-throated Diver (*Gavia stellata*) [A001], Great Northern Diver (*Gavia immer*) [A003], Fulmar (*Fulmarus glacialis*) [A009], Manx Shearwater (*Puffinus puffinus*) [A013], Cormorant (*Phalacrocorax carbo*) [A017], Shag (*Gulosus aristotelis*) [A018], Common Scoter (*Melanitta nigra*) [A065], Little Gull (*Larus minutus*) [A177], Black-headed Gull (*Chroicocephalus ridibundus*) [A179], Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Herring Gull (*Larus argentatus*) [A184], Great Black-backed Gull (*Larus marinus*) [A187], Kittiwake (*Rissa tridactyla*) [A188], Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193], Arctic Tern (*Sterna paradisaea*) [A194], Little Tern (*Sterna albifrons*) [A195], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204]

- Disturbance of species during all Survey Works within intertidal and subtidal zones

▪ Wicklow Mountains SPA

- Merlin (*Falco columbarius*) [A098], Peregrine (*Falco peregrinus*) [A103]

- Disturbance of species during all Survey Works within foreshore and intertidal zones

Mitigation measures have been committed to in order to reduce the impacts on these European designated sites. These measures include:

- The presence of a Marine Mammal Observer (MMO) during bathymetric surveys;
- Completing surveys within the intertidal zone outside of sensitive seasons;
- Tracking GI machinery away from areas of vegetation, where possible; and.
- Timings of surveys outside of the wintering or breeding bird season will minimise disturbance to QI bird species.

Based on the best available scientific information and professional judgement, it is considered that with the mitigation measures, there will be no adverse effects on the integrity of those European sites, alone or in combination with other plans or projects in light of those site's conservation objectives.

The NIS contains information which the competent authorities may consider in making its own conclusions.

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Acronyms and abbreviations

Acronym	Full Name
AA	Appropriate Assessment
ACIEEM	Associate Member of the Chartered Institute of Ecology and Environmental Management
CCA	Coastal Cell Area
CEMP	Construction Environmental Management Plans
CIEEM	Chartered Institute of Ecology and Environmental Management
CO	Conservation Objectives
DoEHLG	Department of Environment, Heritage and Local Government
ECJ	European Court of Justice
EC	European Commission
ECOW	Ecological Clerk of Works
EPA	Environmental Protection Agency
GI	Geotechnical Investigation
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effects
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
MMO	Marine Mammal Observer
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPAD	National Planning Application Database
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
OPR	Office of the Public Regulator
QI	Qualifying Interest
SAC	Special Areas of Conservation
SCI	Special Conservation Interest
SPA	Special Protection Areas
WFD	Water Framework Directive
ZoI	Zone of Influence

1. Introduction

1.1 Background

The East Coast Railway Infrastructure Protection Projects (ECRIPP) are required to defend long sections of the essential Dublin to Rosslare coastal rail line from coastal erosion and wave overtopping. The railway corridor here carries Dublin Area Rapid Transport (DART) and mainline rail services and runs for 168 km from Dublin to Rosslare. Just under half of the route length (77 km) runs adjacent to coastal or estuarine environment making it vulnerable to the impacts of coastal erosion and wave overtopping, which are being exacerbated by climate change. ECRIPP is planned to defend the railway infrastructure and boost coastal resilience in the face of a changing climate with its associated rising sea levels.

The frequency of erosion events as well as wave overtopping has increased in the last 20 years. These incidents have had significant impacts on performance and safety of the railway. Other effects have included major losses of land and impacts on habitats and species using these areas.

Options being considered to ameliorate the effects discussed above include the provision of breakwaters, beach nourishment, rock revetments, and other interventions. The options chosen for each coastal area will be decided on based on a detailed multi-criteria analysis. These options will then be subject to design development. Pre-works surveys (hereby referred to as Proposed Works) are required to inform the development of the ECRIPP design as well as to inform the environmental impact assessment for the project. These surveys include a geotechnical investigation (GI), geophysical survey, marine archaeology surveys, bathymetric surveys, benthic ecology surveys and ecological boat works. An Appropriate Assessment (AA) screening report was prepared which concluded that there was potential for Likely Significant Effects (LSEs) on European sites within the Zone of Influence (ZoI) from ECRIPP. As such the Proposed Works have been progressed to stage 2 AA which is detailed in this Natura Impact Statement (NIS). This NIS has been undertaken to support the Maritime Area Regulatory Authority (MARA) licence required for the Proposed Works to be undertaken in intertidal and subtidal areas.

1.1.1 Location of ECRIPP

The Proposed Works are located along the east coast railway line in Ireland. As part of ECRIPP, five study areas, called CCA's, have been identified as vulnerable to coastal erosion and other climate change effects such as wave overtopping. As part of this assessment of the Survey Works and throughout the MARA licence documentation these will be referenced as "Licence Areas". These Licence Areas as they relate to the CCA's can be seen in Table 1.1 and are shown in Appendix A, Figures 1 and 3.

Table 1.1: Licence Areas.

CCA	Description	Licence Area
1	Merrion Gates to Dun Laoghaire	A
2/3	Dalkey Tunnel to Killiney South	B
5	Bray Head to Greystones North Beach	C
6.1	Greystones South to Newcastle	D
6.2	Newcastle to Wicklow	D

For the purpose of this assessment, CCA 6.1 and CCA6.2 are combined into one – Licence Area D. It should be noted that no protection measures are proposed as part of ECRIPP in CCA4 and therefore no Survey Works are proposed in this CCA.

Licence Map Areas have been developed and accompany this licence application in Appendix A Figure 3.

- Licence Map Area A
- Licence Map Area B
- Licence Map Area C
- Licence Map Area D

1.2 Purpose and structure of this report

1.2.1 Informing Appropriate Assessment Screening

In the context of Article 6(3) of the Habitats Directive and Section 177U(1) of Planning and Development Act 2000 (as amended), Iarnród Éireann as the competent authority for this project, must carry out an Appropriate Assessment (AA) of the Proposed Works to assess whether, on the basis of objective scientific information, the Proposed Works, individually or in-combination with other plans or projects, is likely to have a significant effect on the conservation objectives of any European sites and the mitigation measures required to prevent adverse effects on site integrity. This report presents the information required for the competent authority to undertake the AA for the Proposed Works.

1.2.2 Legislative context

Habitats and species of European importance are provided legal protection under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (hereafter referred to as the Habitats Directive) and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (hereafter referred to as the Birds Directive). The Habitats Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network (hereafter referred to as European sites, as the term Natura 2000 network was replaced by 'European site' under S.I. No. 473 of 2011 – European Union (Environmental Impact Assessment and Habitats) Regulations 2011). European sites comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Candidate SACs (cSACs) and potential SPAs (pSPAs) are afforded the same protection as SACs and SPAs and are therefore assessed in the same manner within this NIS.

The Habitats Directive has been transposed into Irish law by Number 30 of 2000 - Planning and Development Act, 2000 (as amended) and S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 (hereafter referred to as the Birds and Habitats Regulations). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites.

Article 6(3) establishes the requirement for AA:

"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 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."

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."

The Habitats Directive was transposed into Irish law from a planning perspective through Part XAB of the Planning and Development Act 2000 (as amended). The circumstances under which an AA is required, the stages of that assessment which must be undertaken and the responsibilities of the Competent Authority in considering whether or not to approve consent for proposed plans or projects are outlined in the Act.

Section 177U(1) states that:

"A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site."

Where likely significant effects upon a European site are predicted, or cannot be ruled out, it is the responsibility of the Competent Authority to undertake an AA under Article 6(3) of the Habitats Directive, informed through an Natura Impact Statement (NIS), to determine whether or not the proposed plan in combination with any other plan or project would adversely affect the integrity of a European site in light of its Conservation Objectives.

Section 177T(1) states that:

"(a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a Land use plan, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

"(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

Section 177T(2) states that:

"Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites."

1.2.3 Case Law

A number of cases have been brought to both the national and European courts in relation to the AA process. Therefore, relevant case law, European Court of Justice rulings and EC publications have also been considered in the preparation of this NIS.

1.2.4 Stages in Appropriate Assessment

An overview of the Appropriate Assessment process is outlined below:

- Stage 1 Screening: Screening determines whether an AA is required by determining if the project or plan is likely to have a significant effect on any European site(s) either individually or in-combination with other plans or projects, in light of the site's conservation objectives.

- **Stage 2 Appropriate Assessment:** If the screening has determined that AA is required, the competent authority then considers the effect of the project or plan on the integrity of the European site(s), specifically it must be determined if the project or plan will adversely affect the integrity of a European site(s) either individually or in-combination with other plans and projects in view of the conservation objectives of the site(s). Where potential adverse effects on site integrity (AESI) are identified, mitigation measures are proposed to avoid adverse effects, as appropriate. For projects, the AA process is documented within a NIS.

Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, then if the project/plan is to be progressed, the process moves to the next stage.

Where an Assessment of Alternative Solutions fails to identify any suitable alternatives, for a project or plan to be progressed it must demonstrate that there are Imperative Reasons for Overriding Public Interest (IROPI).

If, following an assessment of IROPI, it is deemed that the project or plan can proceed, compensatory measures must be secured to maintain the coherence of the European site network despite adverse effects to the integrity of the site(s).

1.2.5 Authors Qualifications and Expertise

This report has been prepared by [REDACTED] and reviewed by [REDACTED]

[REDACTED] is a Senior Ecologist and holds a BSc (Hons) in Conservation Biology and Ecology from Exeter University. He has four years of pure consultancy associated project experience including Preliminary Ecological Appraisals (PEA), Environmental Impact Assessments (EIA), AA Screening Reports and Natura Impact Statements (NIS). [REDACTED] has a strong background in ornithology and is well practiced in a range of survey techniques.

[REDACTED] is a Chartered Environmentalist and Senior Associate Director of Ecology and has over 20 years of experience of supporting infrastructure projects in ecological assessment, specialising in Habitats Regulations Assessment. Before this, he spent 18 years developing land management, team / project management and stakeholder engagement skills in the nature conservation field. [REDACTED] experience has been in the voluntary, public and private sectors and has included infrastructure projects including new nuclear build, trunk roads, pipelines, electricity transmission and waste management facilities, as well as development of decision-making processes and strategic assessments in the government sector.

2. Assessment Methodology

2.1 Guidance documents

NIS was undertaken in accordance with the following guidance:

- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01.
- Appropriate Assessment of Plans and Proposed Schemes in Ireland. Guidance for Planning Authorities (Department of Environment, Heritage and Local Government (DoEHLG), 2010).
- Assessment of Plans and Projects in Relation to Natura 2000 Sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021a)
- Communication from the Commission on the Precautionary Principle (EC, 2000).
- 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 Commission (EC, 2007).
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018).
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021b).
- Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland (Department of Housing, Local Government and Heritage (DHLGH), 2021).
- Commission Notice: 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 (2021/C 437/01)

Definitions of favourable conservation status, integrity and significance used in this assessment are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (European Commission, 2018):

- *“The term ‘**Favourable Conservation Status**’ is defined in Article 1(e) and 1(i) [of the 'Habitats' Directive 92/43/EEC] and refers to the conservation status of the species or habitat types of Community interest across their natural range within the EU” .*
- *“The ‘**integrity of the site**’ can be usefully defined as the coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated” .*
- *“The **significance of effects** should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site’s Conservation Objectives and ecological characteristics” .*

2.2 Appropriate Assessment methodology

Following screening and where the potential for LSEs has been identified the assessment is progressed to the next step, known as Stage 2 AA.

Stage 2 AA is a focused and detailed examination, analysis and evaluation carried out by the competent authority of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, in summary:

- (i) must identify, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;
- (ii) must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and
- (iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three and, if necessary, stage four.

The process is shown in Figure 2.1 below:

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Consideration of plans and projects affecting Natura 2000 sites

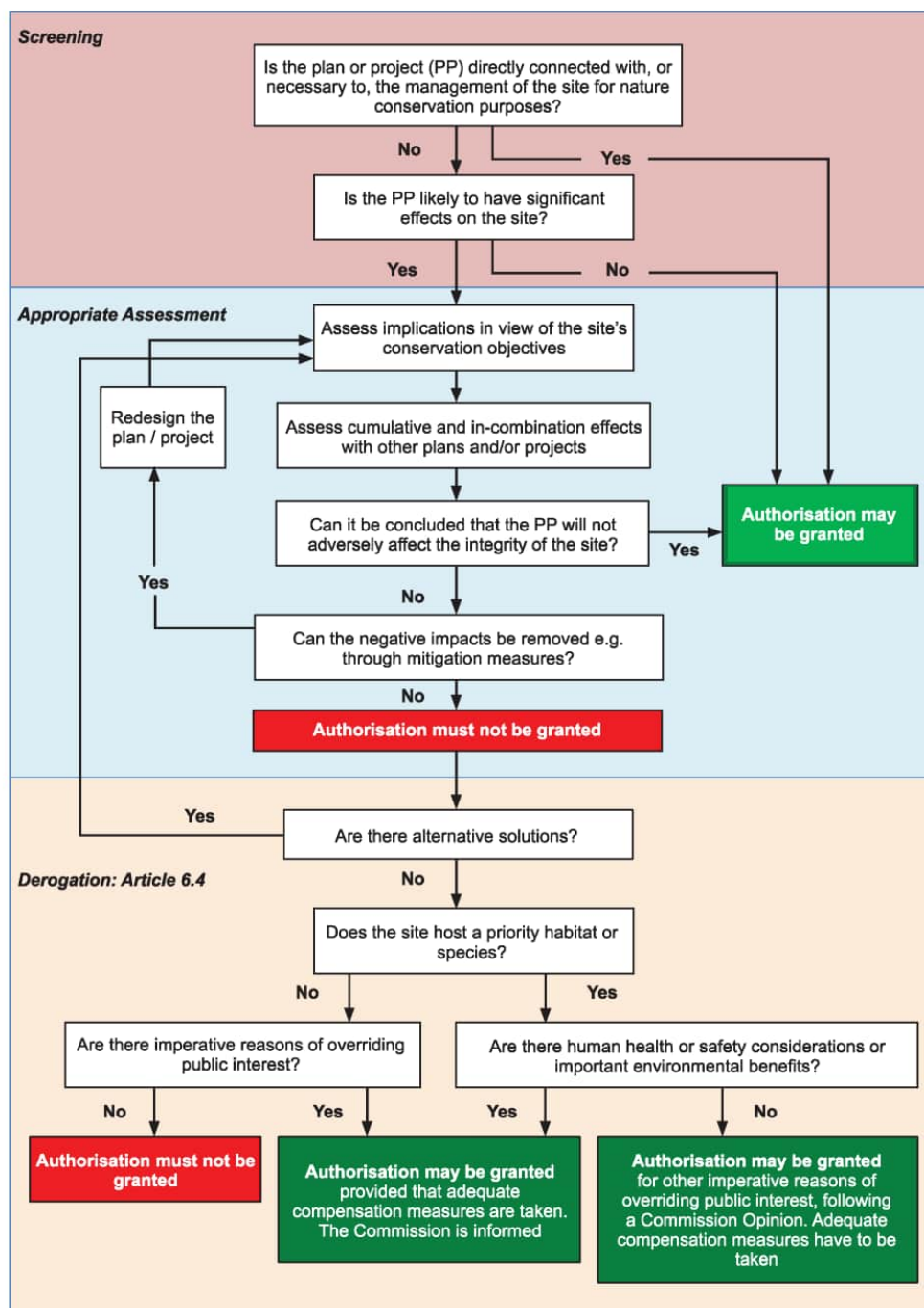


Figure 2.1: Flow chart of Article 6 (3) and (4) procedure (EC, 2018).

2.2.1 Desk review

The following key resources were analysed to inform the baseline description of the Proposed Survey Works site and surrounding environment:

- Aerial imagery (Google Earth; ESRI 2023) (accessed December 2023);

- Environmental Protection Agency (EPA) rivers and water quality data, Water Framework Directive (WFD) status (accessed December 2023) (EPA 2023);
- National Parks and Wildlife Service (NPWS) Mapping of European site boundaries (accessed December 2023) (NPWS 2023a and b);
- Projects from the NPAD (accessed April 2024) (DoEHLG ND);
- The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview (NPWS 2019a);
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments (NPWS 2019b);
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments (NPWS 2019c);
- Other open-source information available online regarding fisheries (e.g. www.salmonireland.com and www.fishingireland.info);
- Online data available on Natura 2000 sites as held by the NPWS, including the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data (accessed April 2024); and
- Protected and invasive species data from the NBDC database (NBDC ND) (accessed April 2024).

2.3 Site visit

The site surveys carried out to inform the assessment are summarised in Table 2.1. Habitats were assessed for their potential to support qualifying interests (Annex I habitats or Annex II species) potentially associated with European sites. The assessment of species and habitats including invasive species was undertaken in line with the following guidelines and informed this NIS:

- A Guide to Habitats in Ireland. (Hereafter referred to as Fossitt) (Fossitt, 2000).
- Article 17 reports (NPWS, 2019a, 2019b, and 2019c).
- CIEEM Good Practice Guidance for Habitats and Species (CIEEM, 2021).
- CIEEM Guidelines for Preliminary Ecological Appraisal. Second Edition (CIEEM, 2017).
- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).
- National Roads Authority (NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA, 2010).
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Standard (TII, 2020a).
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Technical Guidance (TII, 2020b).

2.3.1 Wintering Bird Surveys

Wintering bird surveys were undertaken during winter 2022/23. The surveys were undertaken every hour within a six hour period at vantage points covering all Licence Areas. Low and high tide counts have been used due to the differences in behaviour and site use between tidal states, with different species likely to be foraging and roosting in different areas, depending on the stage of the tidal cycle. The overall objective of the winter bird surveys was to assess the distribution and usage by a variety of wintering wildfowl, seabirds and waders within the ZOI of the Survey Works. All target species were noted with a focus on QI species.

Surveys were undertaken in accordance with the Wetland Bird Survey (WeBS) and Low Tide Count Survey methodologies in (Gilbert et al., 1998). The surveys were carried out at suitable vantage points, located

overlooking large sections of the Licence Areas. The vantage points were chosen to give as wide as possible a view of the survey area.

2.3.2 Breeding Bird Surveys

Breeding bird surveys were undertaken in April, May and June 2023. The survey area included Licence Areas A, B, C and D. Vantage Points were completed within Licence Area B and C. Transects were walked within Licence Areas C and D. The overall objective of the breeding bird surveys was to assess the distribution and usage of breeding wildfowl, seabirds and waders of the ZOI, including QI species. All target species were noted with a focus on QI species.

Surveys were undertaken in accordance with the Common Bird Census (CBC) and WeBS methodologies. The vantage points, were located overlooking known breeding areas in Licence Areas B,C and D. The transects were chosen to cover large areas of suitable habitat. Survey dates are provided in Table 2.1 below:

Table 2.1: Ecological surveys informing baseline environment and examining potential effects on Annex I habitats and Annexed species.

Survey Methodology	Survey date(s)	Surveyors	Scope / method and equipment
Walkover (otter, badger, American mink), invasive species survey, habitat surveys	2023	Experienced Jacobs ecologists	Walkover surveys. Habitat surveys according to Fossitt 2000
Additional habitat survey to detect Annex I habitats and condition assessment	2023	Experienced botanists	Within CCA1 only. Assessment as detailed in Irish Vegetation Classification (Perrin, 2019)
Wintering bird surveys	Between October 2022-March 2023	Experienced Jacobs ecologists	Monthly recorded the abundance and distribution of bird species during low and high tide to identify roosting and foraging populations, with specific focus on QI species
Breeding bird surveys	Between April 2023 – June 2023	Experienced Jacobs ecologists	From land, focusing on the abundance and distribution of breeding wild fowl and seabirds

2.4 Consultation

Consultation has been undertaken with the National Parks and Wildlife Service.

3. Description of Survey Works and site characteristics

3.1 Overview of the Baseline Environment

3.1.1 Habitats (including Annex I)

A desk-based review of the NPWS datasets for Annex I habitats was conducted on the 23 May 2024 which found a number of protected habitats within the Licence Areas. Habitats include mudflats and sandflats not covered by seawater at low tide, annual vegetation of drift lines, *Salicornia* and other annuals colonising mud and sand, embryonic shifting dunes, European dry heaths, reefs, vegetated sea cliffs of the Atlantic and Baltic coasts, perennial vegetation of stony banks, Atlantic salt meadows, Mediterranean salt meadows, calcareous fens and alkaline fens.

3.2 Description of the Survey Works

Full methodologies for all Survey Works and their locations are described below and summarised in Table 3.1.

Table 3.1: Summary of works to be undertaken in each Licence Area

Licence Area	Works to be undertaken	
	Foreshore and intertidal zone (land-based)	Intertidal and subtidal zone (boat-based)
A	Geotechnical investigations, geophysical investigations, bathymetric surveys, benthic ecology surveys (intertidal cores and transects), licenced metal detection surveys	Bathymetric surveys
B	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects and subtidal day grabs)	Bathymetric surveys
C	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects and subtidal day grabs)	Bathymetric surveys, breeding bird surveys, drop down camera surveys, bat surveys, subtidal day grabs
D	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects)	Bathymetric surveys, subtidal day grabs

3.3 Geotechnical and Geophysical Investigations

GI works will be carried out along the upper shore of Licence Area A (Appendix A, Figure 2), as follows:

- 22 borehole surveys (4 no. windows samples and 18 no. windowless samples);
- 19 Trial pits (one hand dug pit and 18 machine excavated pits ("slit trenches"));
- One Dynamic Cone Penetrometer (DCP) test;
- One sediment sample for particle size analysis of beach material; and
- Geophysical surveys comprising two techniques Seismic Refraction Tomography (SRT) and Multichannel Analysis of Surface Waves (MASW).

Works areas will be reinstated to their original state as directed by an on-site Ecological Clerk of Works (ECOW), which will typically involve reinstatement of backfill material.

A temporary mobile portacabin will be provided for the duration of the works in a self-contained facility, which will be parked on roads in public areas outside of any SAC / SPA boundary.

3.3.1 Window Sample Boreholes

3.3.1.1 Windowless Sampler

The percussive window or windowless sampling method involves driving cylindrical steel tubes into the ground using a hydraulic hammer (Figure 3.1). The resulting samples will have a maximum surface diameter of 100mm and a maximum depth of 8m. The drilling rig will be mounted onto rubber tracks to minimise disturbance and ensure the method is suitable for use on environmentally sensitive sites. Each windowless sample will take between 1 to 4 hours to complete depending on ground conditions. The backfilling of locations on the beach will be made using the extracted soil horizons. Any additional backfill material required will comprise bentonite pellets.



Figure 3.1. Windowless sampler example

3.3.1.2 Window Sampler

A further four window samples will be drilled on the slope of the existing revetment. This method is similar to the windowless samples described above, with one initial additional step due to the need to core through the hard strata before commencing with the windowless sample technique. The initial upper layers in the revetment will be cored using the coring application on the drill rig. This core-drilling is designed to produce cores up to 150mm diameter from asphalt, concrete and similar materials. The backfilling of locations on the revetment face will be used via a combination of bentonite pellets, and bentonite grout cement. The cored coping stone will then be placed back into the hole and grouted in place.

3.3.2 Trial Pits

3.3.2.1 Hand-dug Trial Pit

A single foundation inspection pit will be excavated using hand digging tools up to 1m long by 1m in width and excavated to a maximum depth of 2m below ground level. The pit will take approximately 30 minutes to complete,

and the contractors will backfill the pit on the same day. This pit will be dug by hand due to access restrictions for an excavator.

3.3.2.2 Slit Trench Works

A slit trench is a long narrow trench commonly used to determine the position of existing services (Figure 3.2). Eighteen trenches will be excavated up to 4m long by up to 1m in width and to a maximum depth of 2m below ground level using a tracked excavator or a wheeler back-hoe excavator. This method typically takes 1-2 hours to complete depending on ground conditions. These trial pits will be backfilled with the beach sediment or soil arisings as appropriate by the contractors on the same day. Generally, the material will be backfilled in the order it was excavated so as to reinstate the different horizons/ layers to their prior locations. In order to achieve this, during excavation any soil risings/spoil will be placed adjacent to the pit on a tarpaulin or similar material.



Figure 3.2. Slit trench example

3.3.3 Dynamic Cone Penetrometer test

A single Dynamic Cone Penetrometer (DCP) will be undertaken. The DCP test involves driving a steel cone vertically into the ground using a sliding hammer and will take approximately 5-10 minutes to carry out. The number of blows required for each 100mm of penetration will be measured and used to determine the strength and thickness of unbound pavement layers. The resulting depth profile is useful for identifying anomalously weak layers.

3.3.4 Sediment Sampling

Sediment sampling will be undertaken with the use of hand excavation tools. A bag of sediment will be collected for subsequent particle size analysis with one sample taken from the mean high water spring, mean sea level and mean low water spring. This will be taken at a maximum depth of 0.5m and typically takes under an hour to complete.

3.4 Geophysical Surveys

These surveys comprising Seismic Refraction Tomography (SRT) and Multichannel Analysis of Surface Waves (MASW) will be undertaken at two locations within Licence Area A, as shown in Appendix A Figure 3.

3.4.1 Seismic Refraction Tomography

The SRT technique is based on the refraction of seismic energy at the interfaces of geological layers of different velocity (

Figure 3.3). A geophysics technician will use a drop weight such as a hammer to transmit a series of signals into the ground¹. These geophysical signals will be detected by a series of receivers which will be laid out along a transect line at a set distance, with each receiver connected to a control box. These receivers comprise of geophones with 100mm metal spikes that are inserted into the ground. The signals received by these receivers helps determine velocity of these input signals and infer the depth of underlying objects/interface between layers.

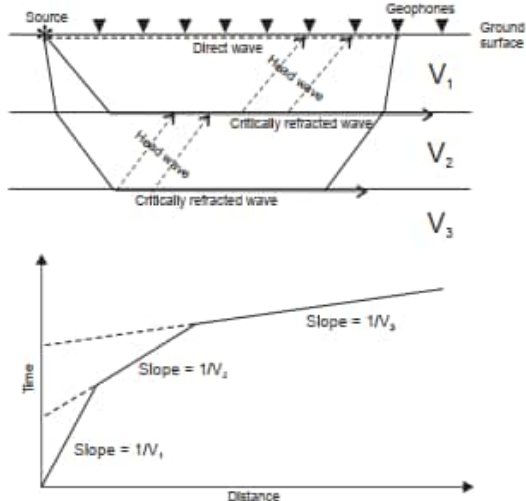


Figure 3.3. SRT Set-Up

3.4.2 Multichannel Analysis of Surface Waves

The MASW technique generates surface waves, which allow the measurement of the variation in soil stiffness with depth (**Error! Reference source not found.**). A geophysics technician will use a drop weight such as a hammer to transmit a series of signals into the ground. These geophysical signals will be detected by a series of receivers which will be laid out along a transect line at a set distance, with each receiver connected to a control box. These receivers comprise of geophones with 100mm metal spikes that are inserted into the ground. The signals received are used to determine the velocity of surface waves generated. A stiffness profile can be generated and ground properties determined at different depths. A transect line can be numbered at 0.5m, or 1m intervals, all the way along its length. This line will be laid across the study area. This method allows for 15m-70m length of geophysical transect per hour.

¹ Typical noise levels for a hammer onto solid item are around 120dBA.

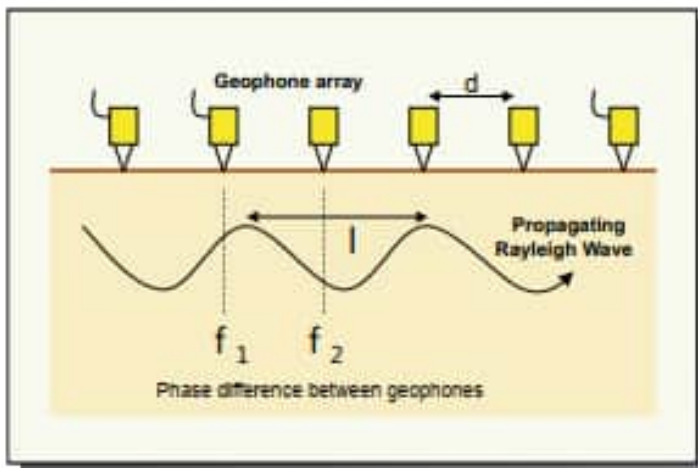


Figure 3.4. MASW Set-Up

3.5 Marine Archaeology Surveys

3.5.1 Licenced metal detection surveys

These will involve a two person intertidal (foreshore) walkover survey using a metal detector, as and where appropriate in the footprint of future ECRIP works and areas affected by the proposed GI.

3.5.2 Other archaeological considerations

Archaeological considerations will be integrated with the planning and execution of the proposed geotechnical and geophysical site investigations (see Sections 2.1 and 2.2) and the resultant data will be assessed for archaeological purposes, as appropriate. Any additional survey requirements agreed in consultation with the Underwater Unit of the National Monuments Service.

3.6 Bathymetric Surveys

The bathymetric and sub-bottom profiling (SBP) surveys are proposed to be carried out within all areas, with coverage between mean high water and either 500m seaward of mean high water or to -10m OD Malin bathymetric contour. The survey works will require mobilisation of survey vessel(s) with survey equipment on board.

- The survey team shall mobilise the survey equipment and carry out all necessary calibrations and verifications of the survey set. Following satisfactory completion of the calibrations and verifications, survey lines shall commence along the planned line plans for the vessel(s).
- In order to ensure coverage of seabed levels up to MHW, an Aerial Drone Survey Contractor will be achieving coverage of the Licence Areas at low water to provide sufficient overlap between the two survey techniques; vessel based and aerial drone based.
- A qualified and experienced marine mammal observer (MMO) will be appointed to monitor for marine mammals on each survey vessel, to log all relevant events using standardised data forms.

3.6.1 Offshore Bathymetric Surveys

The bathymetric survey will be undertaken with the following parameters:

- a nominal planned main line spacing of 20m in water depths below -6m OD.
- a nominal planned main line spacing of 40m in water depths between -6m OD and -10m OD.
- a cross line spacing of 250m, perpendicular to main lines.
- In practice, in extreme shallows, lines will be spaced closer than 20m, and around water depths of between 4 - 6m, line spacing may be greater than 20m. Therefore, a line spacing of 20m has been assumed to be a mean line spacing in this region. Line spacing shall be modified in real time whilst on site in order to ensure 100% coverage in the most efficient manner, whilst achieving the project specifications.
- Bathymetric survey coverage will be continually assessed, and line planning will be adjusted in real time in order to ensure 100% coverage. In order to ensure maximum bathymetric coverage as close as possible up towards mean high water, shoreline survey lines will be carried out during periods of high water. This line will progress simultaneously while collecting bathymetric coverage.

3.6.2 Sub-bottom Profiling Surveys

For the sub-bottom profiling surveys (SBP), it is proposed to carry out a single SBP line, in each of the areas of Multi-Beam Echo Sounder data capture at 300 ±50m offshore of mean high water. In general, shallow-water MBESs operate at a frequency between 100 and 700kHz. A single line of sub-bottom profiler data shall be conducted, around 300m +/-50m from mean high water. These lines have been planned to have the following lengths:

- Licence Area A; SBP Line – 6.4km length
- Licence Area B; SBP Line – 4.1km length
- Licence Area C; SBP Line – 5.5km length
- Licence Area D; SBP Line – 9.1km length
- Licence Area D; SBP Line – 10.4km length

3.7 Ecology Surveys

3.7.1 Breeding Birds – Boat Counts

The sea cliffs in Licence Area C between Bray and Greystones have a high ecological value for coastal birds and their prey. These cliffs are a *key* breeding site for coastal bird species including herring gull (*Larus argentatus*), common gull (*Larus canus*), black-headed gull (*Chroicocephalus ridibundus*), greater black-backed gull (*Larus marinus*), lesser black-backed gull (*Larus fuscus*), kittiwake (*Rissa tridactyla*), fulmar (*Fulmarus glacialis*), guillemot (*Uria aalge*), black guillemot (*Cepphus grylle*), razorbill (*Alca torda*), shag (*Gulosus aristotelis*) and cormorant (*Phalacrocorax carbo*). Additionally, the coastal waters at the base of the cliffs are a key foraging site for these bird species and additional *species* which breed in the vicinity which may include arctic tern (*Sterna paradisaea*), common tern (*Sterna hirundo*), little tern (*Sterna albifrons*) and roseate tern (*Sterna dougallii*).

When determining the breeding activity on the cliff face, it is required that at least three surveys are completed between the months of April and August, however the ideal period is between May and June. The survey will be conducted in daylight hours between 07:00 and 18:00. The entire length of the cliff face from grid reference: O 27668 17934 to grid reference O 28717 15209 shall be surveyed which is approximately 3.3km long.

The boat will be driven 100-200m from the cliff face, with surveyors keeping an eye for bird disturbance as this will not allow for an accurate assessment of breeding activity. If the boat is causing disturbance, surveys will move out to a maximum of 400m.

Surveyors will stop approximately every 300m and will spend up to one hour surveying the stretch of cliff face at each point. These distances may be adjusted on site if the aspect of the cliff face blocks the field of view for surveyors. Surveyors will first survey for breeding activity on the cliff face, looking for nesting sites and resting birds. If time allows then a count of birds foraging in the waters at the base of the cliff will be conducted.

Species, breeding activity and number of birds will be drawn onto the printed maps/ iPad mapping app. The entire length of the cliff face will be photographed using a high-quality camera.

It is preferred that surveyors do in situ counts of breeding bird activity. Photographs taken on the day may only be used for counts if the surveyors first check for the accuracy of the photography. However, this method is not recommended as accuracy tends to be low. This can be done by taking a sample count of 200 birds then photographing the area immediately and repeating this five times. Subsequently, at the desk the photographs can be analysed for accuracy and all other photographs can be used for completing counts with this error reported alongside the count data.

3.7.2 Drop Down Camera Work

During one of the boat survey trips, the drop-down camera work will be conducted. These surveys will be conducted on a day with calm weather conditions to reduce turbidity in the water and allow for maximum camera clarity. A waterproof camera will be lowered to just above the sea floor and images gathered to check for the presence or absence of sandy substrate. The camera will be dropped and will be above the substrate travelling along the entire length of Licence Area C as close to the cliff face as is safe following the boat crew's advice. The camera work will be conducted after the breeding bird surveys are complete to prevent any potential disturbance from effecting those surveys. Footage will be assessed during a desk-based assessment.

3.7.3 Bat Roosting Assessment

During one of the boat survey trips a bat roosting assessment will be undertaken to examine the cliffs for caves and cracks above the sea level and assess these areas for bat roost potential. Upon completion of the breeding bird surveys on the return trip the bat roosting assessment will take place. The boat will drive at a pace guided by ecologists so that all features can be recorded and photographed. Ecologists will instruct the boat crew to stop if required. Potential roosts will be mapped on the iPad and photographs will be taken.

3.7.4 Benthic Ecology Surveys

3.7.4.1 Intertidal Cores

In Licence Area A and B, six core replicates will be taken at 15 intertidal core sites, with 75 replicates in total for infaunal analysis and 15 replicates for sediment particle size and chemistry. Each intertidal core will cover an area of approximately 0.01m², and the core will be taken to a depth of 20cm, sieved and infaunal preserved for laboratory identification. The cores are proposed to be undertaken in September to replicate the overwintering bird period.

3.7.4.2 Intertidal Transects

Intertidal transects are proposed from the high water mark to the low water mark with quadrats undertaken to allow for accurate biotope mapping to be established. Between two and four transects are proposed per 1km of frontage, with up to eight transects completed in one day per team. Where intertidal areas are homogenous then a lower number of transects may be required (>500m apart). In Licence Area A, up to ten intertidal transects are proposed, up to 13 in Licence area B, up to three in Licence Area D and up to 88 intertidal transects in Licence Area D.

3.7.4.3 Subtidal Day Grabs

In Licence Area C, up to six 0.1m subtidal day grabs (or equivalent) are proposed to allow the collection of benthic fauna and to allow habitat categorisation, with three replicates for each sample (and up to 18 replicates in total). In Licence Area D, up to three 0.1m subtidal day grabs (or equivalent) are proposed (up to nine replicates in total). The subtidal day grabs would be undertaken by hand between May and August.

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4. Identification of relevant European Sites

4.1 Conclusion of Screening for Appropriate Assessment

The Proposed Works will occur within South Dublin Bay SAC, The Murrough SAC, South Dublin Bay and Tolka Estuary SPA and The Murrough SPA. The Proposed Works are not directly connected with or necessary to the conservation management of any these European sites.

The associated Appropriate Assessment Screening Report (Appendix C), presents the objective scientific information required to inform a robust and complete examination of the potential impacts of the Proposed Works on European sites.

The conclusion of the Screening for Appropriate Assessment was that, in the absence of mitigation measures, the following Likely Significant Effects to undermine the conservation objectives of the following European sites cannot be excluded:

- South Dublin Bay SAC
 - Mudflats and sandflats not covered by seawater at low tide [1140], annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], embryonic shifting dunes [2110]
 - Habitat loss – temporary
- Rockabill to Dalkey Island SAC
 - *Phocoena phocoena* (Harbour Porpoise) [1351]
 - Disturbance of species
- Lambay Island SAC
 - *Phocoena phocoena* (Harbour Porpoise) [1351], *Halichoerus grypus* (Grey Seal) [1364], *Phoca vitulina* (Harbour Seal) [1365]
 - Disturbance of species
- Codling Fault Zone SAC
 - *Phocoena phocoena* (Harbour Porpoise) [1351]
 - Disturbance of species
- South Dublin Bay and River Tolka Estuary SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Oystercatcher (*Haematopus ostralegus*) [A130], Ringed plover (*Charadrius hiaticula*) [A137], Grey plover (*Pluvialis squatarola*) [A141], Knot (*Calidris canutus*) [A143], Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149], Bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species
- The Murrough SPA
 - Red-throated diver (*Gavia stellata*) [A001], Greylag goose (*Anser anser*) [A043], Light-bellied brent goose (*Branta bernicla hrota*) [A046], Wigeon (*Mareca penelope*) [A050], Teal (*Anas crecca*) [A052], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Herring gull (*Larus argentatus*) [A184], Little tern (*Sterna albifrons*) [A195]
 - Disturbance of species

- Dalkey Islands SPA
 - Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species
- Wicklow Head SPA
 - Kittiwake (*Rissa tridactyla*) [A188]
 - Disturbance of species
- North Bull Island SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Teal (*Anas crecca*) [A052], Pintail (*Anas acuta*) [A054], Shoveler (*Spatula clypeata*) [A056], Oystercatcher (*Haematopus ostralegus*) [A130], Golden Plover (*Pluvialis apricaria*) [A140], Grey plover (*Pluvialis squatarola*) [A141], 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], Turnstone (*Arenaria interpres*) [A169], Black-headed gull (*Chroicocephalus ridibundus*) [A179]
 - Disturbance of species
- North-West Irish Sea SPA
 - Red-throated Diver (*Gavia stellata*) [A001], Great Northern Diver (*Gavia immer*) [A003], Fulmar (*Fulmarus glacialis*) [A009], Manx Shearwater (*Puffinus puffinus*) [A013], Cormorant (*Phalacrocorax carbo*) [A017], Shag (*Gulosus aristotelis*) [A018], Common Scoter (*Melanitta nigra*) [A065], Little Gull (*Larus minutus*) [A177], Black-headed Gull (*Chroicocephalus ridibundus*) [A179], Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Herring Gull (*Larus argentatus*) [A184], Great Black-backed Gull (*Larus marinus*) [A187], Kittiwake (*Rissa tridactyla*) [A188], Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193], Arctic Tern (*Sterna paradisaea*) [A194], Little Tern (*Sterna albifrons*) [A195], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204]
 - Disturbance of species
- Wicklow Mountains SPA
 - Merlin (*Falco columbarius*) [A098], Peregrine (*Falco peregrinus*) [A103]
 - Disturbance of species

It was therefore concluded that the Proposed Works is progressed to Stage 2 AA which will comprise a detailed assessment of the potential for adverse effects on the integrity of European sites through these LSEs including an assessment of the Proposed Works in-combination with other plans and projects. Detailed information to inform the AA for the Proposed Works will be presented in this Natura Impact Statement which will be submitted at planning to enable the Competent Authority to undertake an AA in respect of the Proposed Works.

4.1.1 Potential effect pathways from the Survey Works

Table 4.1 outlines broad categories of potential impacts that could occur as a result of the Survey Works, and the potential effects on European sites and associated Qualifying Interest (QI) species or habitats.

Table 4.1: Potential effect pathways from Development on European sites

Pathway name	Potential Pathway	Zone of Influence
Habitat loss - temporary	Geotechnical Investigation works could result in the temporary loss of habitats, potentially affecting QI habitat or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites	The ZOI assessed is within the footprint of the Survey Works Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site (for example, off-site area of known foraging, roosting, breeding habitat for a QI for which a European site is designated).
Disturbance of species	Survey Works could result in disturbance of QI species through changes in noise, vibration, movement (of people and/or vehicles) and lighting. Disturbance may lead to the abandonment of breeding, foraging or resting sites by QI species, potentially resulting in increased energy expenditure, reduced fitness and inability to complete lifecycle stages	The ZOI assessed depends on the species being assessed. 300m is considered to be an appropriate distance to assess disturbance of QI bird species as they are unlikely to be significantly disturbed beyond this distance. An assessment of the disturbance distance and response threshold for QI bird species to qualify this distance is undertaken in Table 4.2 below. 500m is considered to be the distance at which marine mammals are disturbed by load works, such as piling, due to their heightened senses underwater. An assessment of the distance and response threshold for QI mammal species is discussed in Section 4.2.

4.1.2 Establishing a Zone of Influence of Temporary Habitat Loss

The ZOI for temporary habitat loss is under the temporary footprint of the Survey Works, specifically the GI works. Other Survey Works will not result in temporary habitat loss. Appendix A, Figure 2 shows the location of the GI works within Licence Area A.

Access to GI locations will be via public access routes to South Dublin Bay and along the beach thereafter. Specifically, for Licence Area A this will be via Merrion Gates (northern section) and Dun Laoghaire West Pier (southern section). The proposed access route for the drilling rig and excavator onto the beach will be via the R131 adjacent to Merrion Strand to the north-west of Blackrock Station. The proposed route towards Booterstown and Blackrock Stations will be along the northern section of the spit formation, along the flat sandy area of the beach. The intertidal area is considered suitable and should be capable of supporting a 3T Excavator or Terrier Rig. There will be one channel crossing necessary, but it is narrow and shallow in nature. Any rigs travelling along the beach will stay as close to the coastal embankment wall as possible (where the ground is less saturated and therefore will provide more support for travelling rigs). Following the surveys any backfill material will be reinstated.

4.1.3 Establishing a Zone of Influence of disturbance

4.1.3.1 Qualifying Interest Mammal species

The ZOI for noise and visual disturbances demarcates the area within which marine mammal species could be disturbed/displaced by bathymetric surveys. NPWS guidance (2014) states that underwater sound can have a

number of impacts on marine mammals, including behavioural, physical, stress and indirect effects. There are a range of factors involved in determining the impact.

- Frequency, bandwidth, duration, duty cycle and directionality of the sound;
- A sounds energy output, rise time and persistence
- Sound Pressure Level (SPL) –the amplitude of a sound’s waveform;
- Sound Exposure Level (SEL) – A measure of sound energy over a given duration;
- Sound Received Level (RL) – the pressure level measured at the receiver, e.g., mammal;
- Ambient sound - i.e., background sound levels from all sources including natural sources; and
- Water depth, stratification and seabed characteristics – e.g., topography, substrate type, slope.

Different species have different levels of hearing with harbour porpoise being the most at risk from high frequency noise. Species will also differ in periods of sensitivity, for example during the breeding season. NPWS (2014) guidance states that for multibeam, single beam, side-scan sonar and sub-bottom profiler surveys a 500m radial distance of the sound source is required.

4.1.3.2 Qualifying Interest bird species

The Zol for noise and visual disturbances demarcates the area within which birds could be disturbed/displaced by all Survey Works. The breeding and wintering bird data (Tables 5.5 and 5.6) shows the numbers of birds within this Zol which could be disturbed or displaced, the locations at which aggregations of birds occur, during which period of the year and at what tidal state. To establish a Zol around visual and noise disturbances, and potential impacts to qualifying species, an understanding of potential disturbance distances for individual species is required.

Cutts *et al.* (2013) at a strategic level, suggests a 300m Zol for noise and visual disturbances. As part of the ornithological investigation of this assessment the suitability of this 300m Zol distance has been tested for each of the qualifying species individually by investigating all available literature. A summary of this review and the thresholds for each qualifying species based on a range of academic literature and research studies can be found in Table 4.2.

Table 4.2: Disturbance distance / response threshold for QI species of SPAs within the Zol.

Species	Disturbance distance/ response threshold range (m)	Description	Citation(s)
Brent goose	200-400m	High sensitivity.	Cutts <i>et al.</i> , 2013
Greylag goose	200-600m	Medium sensitivity.	Díaz <i>et al.</i> , 2021 Hearn and Mitchell, 2004
Shelduck	200-300m	High sensitivity. Wary species highly sensitive to visual disturbances during construction activities. Noted as a moderate to low response level to disturbance during wintering months and shows signs of habituation.	Liley, 2011 Laursen <i>et al.</i> , 2005 Cutts <i>et al.</i> , 2009 Antill <i>et al.</i> , 2016 Goodship and Furness, 2019
Wigeon	100-250m	Less tolerant of some disturbances than other duck species.	Mathers <i>et al.</i> , 2000 Liley, 2011

Species	Disturbance distance/ response threshold range (m)	Description	Citation(s)
			Antill <i>et al.</i> , 2016
Teal	50m	Low sensitivity.	Ross and Liley, 2014
Pintail	100 – 250m	Medium sensitivity.	Liley., 2011
Shoveler	150 – 250m	Moderate sensitivity to noise and visual disturbances.	Bregnballe <i>et al.</i> , 2009
Common scoter	1-4km	Foraging and roosting flocks have high sensitivity especially due to large watercraft.	Schwemmer <i>et al.</i> , 2011 Larsen and Laubek, 2005
Red-breasted merganser	50-300m	Limited research. High degree of sensitivity to marine traffic.	Liley <i>et al.</i> , 2011 Antill <i>et al.</i> , 2016 Gittings and O'Donoghue, 2016 Goodship and Furness, 2019
Red-throated diver	Up to 1000m	High sensitivity	Liley <i>et al.</i> , 2011 Borgmann, 2012
Great northern diver	100-350m	Medium to high sensitivity	Borgmann, 2012
Cormorant	100-200m	Cormorant tolerate high levels of human activity and the presence of artificial structures, so are less vulnerable to disturbance (i.e. noise, visual).	Bregnballe <i>et al.</i> 2009 Antill <i>et al.</i> , 2016 Dierschke <i>et al.</i> , 2016 Goodship and Furness, 2019
Shag	200-500m	Shag are more sensitive to disturbance than cormorant.	Goodship and Furness, 2019
Oystercatcher	100-200m	Moderate sensitivity. Relatively tolerant and will habituate to activity.	Smit and Visser, 1993 Laursen <i>et al.</i> , 2005 Cutts <i>et al.</i> , 2013 Goodship and Furness, 2022
Curlew	300m	Moderate sensitivity. Curlew is a wary species that does not habituate to works rapidly and is also particularly intolerant of people, allowing approach to a range of 120-300m before flushing when confronted with a lone walker on a mudflat. More tolerant of vehicle movements.	Cutts <i>et al.</i> , 2009 Cutts <i>et al.</i> , 2013 Goodship and Furness, 2022
Dunlin	75-300m	Low sensitivity. Dunlin is a relatively tolerant species in comparison to other wader species.	Laursen <i>et al.</i> , 2005 Cutts <i>et al.</i> , 2009 Cutts <i>et al.</i> , 2013

Species	Disturbance distance/ response threshold range (m)	Description	Citation(s)
			Goodship and Furness, 2022
Knot	100-200m	Moderate sensitivity	Cutts <i>et al.</i> , 2013 Goodship and Furness, 2022
Sanderling	50-100m	Low sensitivity	Cutts <i>et al.</i> , 2013
Golden plover	100-300m	Moderate sensitivity. Little research however noted to exhibit more tolerance to moderate level visual disturbance than other waders.	Smit and Visser, 1993 Laursen <i>et al.</i> , 2005 IECS, 2007 Cutts <i>et al.</i> , 2013
Grey plover	250-300m	Moderate sensitivity. Considered relatively tolerant of disturbances. Lack of studies available.	Laursen <i>et al.</i> , 2005 Cutts <i>et al.</i> , 2013
Ringed plover	50-100m	Low sensitivity. Quick to habituate, however nesting will often be abandoned in areas of consistently high human disturbance.	Liley and Sutherland, 2007 Cutts <i>et al.</i> , 2013
Bar-tailed godwit	150-200m	Moderate sensitivity. Bar-tailed godwits are likely to be absent in highly disturbed areas and those that are present are likely to be highly stressed. Birds are particularly sensitive to disturbance at roost sites.	Laursen <i>et al.</i> , 2005 Cutts <i>et al.</i> , 2013
Black-tailed godwit	100-200m	Moderate sensitivity to noise and visual disturbances.	Ross and Liley, 2014; Cutts <i>et al.</i> , 2013
Redshank	115-300m	Low sensitivity. Although highly sensitive to noise stimuli redshank are relatively tolerant to visual disturbances. May be displaced by workers at mudflat level and where facilitation occurs (i.e. when multiple stimuli occur at the same time).	Smit and Visser, 1993 Laursen <i>et al.</i> , 2005 IECS, 2007 Cutts <i>et al.</i> , 2009 Cutts <i>et al.</i> , 2013
Turnstone	50-100m	Low sensitivity	Cutts <i>et al.</i> , 2013
Black-headed gull	100m	Low sensitivity	Goodship and Furness, 2019
Little gull	120m	Limited research. Considered to have a low to moderate sensitivity to human disturbances.	Goodship and Furness, 2019

Species	Disturbance distance/ response threshold range (m)	Description	Citation(s)
Kittiwake	120m	Limited research. Considered to have a low to moderate sensitivity to human disturbances.	Goodship and Furness, 2019
Common gull	120m	Limited research. Considered to have a low to moderate sensitivity to human disturbances.	Goodship and Furness, 2019
Herring gull	25m	Low sensitivity to human disturbances	Goodship and Furness, 2019
Lesser black-backed gull	25m	Low sensitivity to human disturbances	Goodship and Furness, 2019
Great black-backed gull	100m	Lower sensitivity to human disturbance	Goodship and Furness, 2019
Common tern	200m-400m	Moderate sensitivity to human disturbance at breeding colonies. Lack of research available.	Goodship and Furness, 2022
Roseate tern	200m-400m	Moderate sensitivity to human disturbance at breeding colonies. Lack of research available.	Goodship and Furness, 2022
Arctic tern	200m-400m	Moderate sensitivity to human disturbance at breeding colonies. Lack of research available.	Goodship and Furness, 2022
Little tern	100-300m	Moderate sensitivity to human disturbance at breeding colonies. Lack of research available.	Goodship and Furness, 2022
Manx shearwater	100-300m	Low sensitivity from general boat traffic. Lack of research available.	Cook and Burton, 2010
Fulmar	100-300m	Low sensitivity from general boat traffic. Lack of research available. Use great black-backed gull as proxy	Goodship and Furness, 2019
Common guillemot	50-100m	Medium sensitivity. Lack of research available.	Goodship and Furness, 2019
Razorbill	50-100m	Medium sensitivity. Lack of research available.	Goodship and Furness, 2019
Puffin	50-100m	Medium sensitivity. Lack of research available. Use Common Guillemot as proxy.	Goodship and Furness, 2019
Merlin	Up to 200m	Medium sensitivity	Holmes <i>et al.</i> , 1993
Peregrine	Up to 200m	Medium sensitivity	Holmes <i>et al.</i> , 1993

The approach of a 300m Zol suggested by Cutts *et al.* (2013) has been shown to be suitable for the majority of purposes of this NIS based on the Survey Works being undertaken. Given the Study Works area, baseline levels of disturbance and nature of the Survey Works, a Zol of 300m has been concluded as appropriate for the assessment by reviewing studies on disturbance distance/response thresholds for qualifying species of the European sites identified within the AA screening report, South Dublin Bay and Tolka Estuary SPA, The Murrough SPA, Howth Head SPA, Wicklow Head SPA, North Bull Island SPA, Dalkey Island SPA, North West Irish Sea SPA and Wicklow Mountains SPA.

4.2 European Sites within the Zol of the Proposed Project

The 'source-pathway-receptor' model was applied taking consideration of all potential impact pathways connecting elements of the Survey Works to European sites in view of their conservation objectives. The Survey Works were examined with reference to their location to European sites, and taking account of the potential effects outlined in **Table 4.1** above, the following European sites are considered to be within the Zol of the Proposed Project:

1. South Dublin Bay SAC
2. Rockabill to Dalkey Island SAC
3. Lambay Island SAC
4. Codling Fault Zone SAC
5. South Dublin Bay and River Tolka Estuary SPA
6. The Murrough SPA
7. Dalkey Islands SPA
8. Wicklow Head SPA
9. North Bull Island SPA
10. North-West Irish Sea SPA
11. Wicklow Mountains SPA

The conservation objectives and QIs of European sites within the Zol of the Survey Works are detailed in Table 4.3 below and these European sites are shown in Appendix A, Figure 3.

Table 4.3: European sites and QIs within Zol of the Survey Works. QIs highlighted grey are outside the Zol of the Survey Works and are not assessed any further.

European sites	QIs	Conservation objectives
Special Areas of Conservation (SACs)		
South Dublin Bay SAC (000210) Om. Within Licence Area A	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> • The permanent habitat area is stable or increasing; • Maintain the extent of the <i>Zostera</i>-dominated community; • Conserve the high quality of the <i>Zostera</i>-dominated community; and • Conserve the following community type in a natural condition: Fine sands with <i>Angulus tenuis</i> community complex.

European sites	QIs	Conservation objectives
		<p>No conservation objectives were present Annual vegetation of drift lines [1210] for South Dublin Bay SAC. Conservation objectives listed for The Murrough Wetlands SAC can be used as proxy, which are defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • The habitat area is stable or increasing • The habitat distribution does not decline • The natural circulation of sediment and organic matter is restored • Vegetation structure (zonation) is maintained • Vegetation composition is as follow: typical species and sub-communities are maintained, cover of native negative indicator species is low (based on Delaney et al., 2013), non-native species cover is less than 20% <p>No conservation objectives were present <i>Salicornia</i> and other annuals colonising mud and sand for South Dublin Bay SAC. Conservation objectives listed for North Dublin Bay SAC can be used as proxy and are as follows: To restore the favourable conservation condition of <i>Salicornia</i> and other annuals colonizing mud and sand, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Habitat area is maintained or increased • Habitat distribution does not decline or change • The presence/absence of physical barrier is maintained or restored • Creeks and pans structure and tidal regime are maintained • The vegetation structure (zonation, vegetation height) is maintained • The vegetation cover is maintained higher than 90% outside creeks • The vegetation composition is maintained (with maintenance of species-poor communities listed in SMP) • Annual spread of <i>Spartina anglica</i> has to be maintained lower than 1% <p>No conservation objectives were present Embryonic shifting dunes for South Dublin Bay SAC. Conservation objectives listed for North Dublin Bay SAC can be used as proxy and are defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Habitat area is maintained or increased • Habitat distribution does not decline or change • The presence/absence of physical barrier is maintained or restored • The vegetation structure (zonation) is maintained

European sites	QIs	Conservation objectives
		<ul style="list-style-type: none"> More than 95% of the vegetation cover of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) is healthy The presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) is maintained Negative indicator species are maintained at level inferior to the 5% of the cover
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Reefs [1170] Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	<p>To maintain the favourable conservation condition of Reefs in Rockabil to Dalkey Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The permanent habitat area is stable or increasing The distribution of reef is stable of increasing Community structure Current-swept subtidal reef community complex in conserved <p>To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Access to suitable areas for the species is not restricted by artificial barriers <p>Activities disturbance is maintained at levels that does not adversely affect the species</p>
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] Grey Seal (<i>Halichoerus grypus</i>) [1364] Harbour Seal (<i>Phoca vitulina</i>) [1365]	<p>To maintain the favourable conservation condition of Reefs in Rockabil to Dalkey Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The permanent habitat area is stable or increasing The distribution of reef is stable of increasing Community structure Current-swept subtidal reef community complex in conserved <p>To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Lambay SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable The habitat distribution does not decline No alteration occurs to natural functioning of geomorphological and hydrological processes, due to artificial barriers Vegetation structure (zonation, height) are maintained Vegetation composition is maintained as follow: typical species and sub-species communities are maintained (Barron et al., 2011), negative indicator species cover is less than 5%, bracken

European sites	QIs	Conservation objectives
		<p>and woody species are respectively less than 10% and 20%.</p> <p>No species-specific conservation objectives were present for <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] for Lambay Island SAC. Conservation objectives listed for Rockabill to Dalkey Island SAC (003000) can be used as proxy.</p> <p>To maintain the favourable conservation condition of Grey Seal and Harbour Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • The access to suitable habitat is not restricted • Breeding sites are maintained • Moulting haul-out sites are maintained • Resting haul-out sites are maintained • Disturbance correlated to human activities occur at levels that do not affect the species <p>To maintain the favourable conservation condition of Harbour Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • The access to suitable habitat is not restricted • Breeding sites are maintained • Moulting haul-out sites are maintained • Resting haul-out sites are maintained <p>Disturbance correlated to human activities occur at levels that do not affect the species</p>
<p>Codling Fault Zone SAC (003015)</p> <p>28.5km north east direct distance and hydrological distance</p>	<p>Submarine structures made by leaking gases [1180]</p> <p>Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]</p>	<p>To maintain the favourable conservation condition of Submarine structures made by leaking gases in Codling Fault Zone SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Habitat area is stable or increasing • Habitat distribution is stable or increasing • Structural integrity of the MDAC features is maintained • The Codling Fault Zone MDACs community complex is conserved in natural conditions <p>No conservation objectives were present for <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] for Codling Fault Zone SAC (003015). Conservation objectives listed for Rockabill to Dalkey Island SAC (003000) can be used as proxy.</p>
Special Protection Areas (SPAs)		
<p>South Dublin Bay and River Tolka Estuary SPA (004024)</p>	<p>Light-bellied Brent goose (<i>Branta bernicla hrota</i>) [A046]</p> <p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130]</p>	<p>To maintain the favourable conservation condition of Light-bellied Brent Goose, oystercatcher, ringed plover, grey plover, knot, sanderling, bar-tailed godwit, dunlin, redshank and black-headed gull in South Dublin Bay and</p>

European sites	QIs	Conservation objectives
Om. Within Licence Area A	<p>Ringed plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>Grey plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>Sanderling (<i>Calidris alba</i>) [A144]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p> <p>Bar-tailed godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Roseate tern (<i>Sterna dougallii</i>) [A192]</p> <p>Common tern (<i>Sterna hirundo</i>) [A193]</p> <p>Arctic tern (<i>Sterna paradisaea</i>) [A194]</p> <p>Wetland and Waterbirds [A999]</p>	<p>River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of roseate tern and Arctic tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Individual number is maintained or increased Distribution of roosting area does not decline Prey biomass does not decline Barriers to connectivity do not increase Disturbance level occur at level that do not affect the number of roosting sites <p>To maintain the favourable conservation condition of common tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Individual number is maintained or increased Breeding population abundance does not decline Mean number of young per breeding pair does not decline Distribution of breeding colonies and roosting area do not decline Prey biomass does not decline Barriers to connectivity do not increase Disturbance level occur at level that do not affect the number of roosting and breeding sites <p>To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it, which is defined by the following list of attributes and targets:</p> <p>Wetland habitat area is maintained and is not less than 2,192 ha</p>
<p>The Murrough SPA (004186)</p> <p>Om. Within Licence Area D</p>	<p>Red-throated diver (<i>Gavia stellata</i>) [A001]</p> <p>Greylag goose (<i>Anser anser</i>) [A043]</p> <p>Light-bellied brent goose (<i>Branta bemicla hrota</i>) [A046]</p> <p>Wigeon (<i>Mareca penelope</i>) [A050]</p> <p>Teal (<i>Anas crecca</i>) [A052]</p> <p>Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]</p>	<p>No site-specific conservation objectives were present for Red-throated diver (<i>Gavia stellata</i>) [A001] for The Murrough SPA (004186). Conservation objectives listed for North-west Irish Sea SPA [004236] can be used as proxy</p> <p>No site-specific conservation objectives were present for Greylag goose (<i>Anser anser</i>) [A043] for The Murrough SPA (004186). Conservation objectives listed for Rogerstown Estuary SPA [004015] can be used as proxy which is defined by the following list of attributes and targets:</p>

European sites	QIs	Conservation objectives
	<p>Herring gull (<i>Larus argentatus</i>) [A184]</p> <p>Little tern (<i>Sterna albifrons</i>) [A195]</p> <p>Wetland and Waterbirds [A999]</p>	<ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease <p>No site-specific conservation objectives were present for Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA (004024) can be used as proxy</p> <p>No site-specific conservation objectives were present for Teal (<i>Anas crecca</i>) [A052] for The Murrough SPA (004186). Conservation objectives listed for North Bull Island SPA [004006] can be used as proxy</p> <p>No site-specific conservation objectives were present for Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA (004024) can be used as proxy</p> <p>No site-specific conservation objectives were present for Herring gull (<i>Larus argentatus</i>) [A184] for The Murrough SPA (004186). Conservation objectives listed for North-west Irish Sea SPA [004236] can be used as proxy</p> <p>No site-specific conservation objectives were present for Little tern (<i>Sterna albifrons</i>) [A195] for The Murrough SPA (004186). Conservation objectives listed for tern species at Rockabill SPA can be used as proxy, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Breeding population is not declining Fledged young per breeding pair are not declining Breeding colonies is not declining Prey availability is not declining Barriers to connectivity are not increasing Disturbance correlated to human activities occur at levels that do not affect the breeding population <p>No site-specific conservation objectives were present for Wetland and Waterbirds [A999] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA can be used as proxy</p>
Dalkey Islands SPA (004172)	<p>Roseate tern (<i>Sterna dougallii</i>) [A192]</p> <p>Common tern (<i>Sterna hirundo</i>) [A193]</p>	<p>No site-specific conservation objectives were present for Roseate tern (<i>Sterna dougallii</i>) [A192], Common tern (<i>Sterna hirundo</i>) [A193] or Arctic tern (<i>Sterna paradisaea</i>) [A194] for Dalkey Islands SPA (004172).</p>

European sites	QIs	Conservation objectives
0.5km north east both direct distance and hydrological distance	Arctic tern (<i>Sterna paradisaea</i>) [A194]	Conservation objectives listed for Rockabill SPA can be used as proxy, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Breeding population is not declining Fledged young per breeding pair are not declining Breeding colonies is not declining Prey availability is not declining Barriers to connectivity are not increasing Disturbance correlated to human activities occur at levels that do not affect the breeding population
Wicklow Head SPA (004127) 2.5km south east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	No conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Spatula clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169]	To maintain the favourable conservation condition of light-bellied brent goose, shelduck, teal, pintail, shoveler, oystercatcher, golden plover, grey plover, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, curlew redshank, turnstone and black-headed gull in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly occurring migratory waterbirds that utilise it, which is defined by the following list of attributes and targets:</p> <p>The permanent area occupied by the wetland habitat is stable and not less than 1,713 ha</p>

European sites	QIs	Conservation objectives
	<p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Wetland and Waterbirds [A999]</p>	
<p>North-West Irish Sea SPA (004236)</p> <p>4.8km north east both direct distance and hydrological distance;</p>	<p>Red-throated Diver (<i>Gavia stellata</i>) [A001]</p> <p>Great Northern Diver (<i>Gavia immer</i>) [A003]</p> <p>Fulmar (<i>Fulmarus glacialis</i>) [A009]</p> <p>Manx Shearwater (<i>Puffinus puffinus</i>) [A013]</p> <p>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</p> <p>Shag (<i>Gulosus aristotelis</i>) [A018]</p> <p>Common Scoter (<i>Melanitta nigra</i>) [A065]</p> <p>Little Gull (<i>Larus minutus</i>) [A177]</p> <p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Common Gull (<i>Larus canus</i>) [A182]</p> <p>Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]</p> <p>Herring Gull (<i>Larus argentatus</i>) [A184]</p> <p>Great Black-backed Gull (<i>Larus marinus</i>) [A187]</p> <p>Kittiwake (<i>Rissa tridactyla</i>) [A188]</p> <p>Roseate Tern (<i>Sterna dougallii</i>) [A192]</p> <p>Common Tern (<i>Sterna hirundo</i>) [A193]</p> <p>Arctic Tern (<i>Sterna paradisaea</i>) [A194]</p> <p>Little Tern (<i>Sterna albifrons</i>) [A195]</p> <p>Guillemot (<i>Uria aalge</i>) [A199]</p> <p>Razorbill (<i>Alca torda</i>) [A200]</p> <p>Puffin (<i>Fratercula arctica</i>) [A204]</p>	<p>To maintain the favourable conservation condition of red-throated diver, great northern diver, common scoter, black-headed gull, common gull, great black-backed gull and little gull at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Non-breeding population size does not decline • Spatial distribution of suitable habitat is maintained sufficient to support the species • Forage spatial distribution and available forage biomass are maintained sufficient to support the species • Disturbance is maintained at levels that do not impact on the species • Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of fulmar, herring gull, kittiwake, guillemot and razorbill at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Population size does not decline • Spatial distribution of suitable habitat is maintained sufficient to support the species • Forage spatial distribution and available forage biomass are maintained sufficient to support the species • Disturbance is maintained at levels that do not impact on the specie • Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of manx shearwater, cormorant, shag, lesser black-backed gull, roseate tern, common tern, Arctic tern, little tern and puffin at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> • Breeding population size does not decline • Spatial distribution of suitable habitat is maintained sufficient to support the species • Forage spatial distribution and available forage biomass are maintained sufficient to support the species • Disturbance is maintained at levels that do not impact on the species

European sites	QIs	Conservation objectives
		<ul style="list-style-type: none"> Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA

4.2.1 Other European Sites

No ecological pathway, functional link or significant effect was identified between the Survey Works and other European sites other than those identified in Table 4.3 above.

5. Information for Appropriate Assessment

5.1 Receiving Environment

The results of the desk-based review and site visits is presented in the following sections. Photographs taken during the site visits are presented in Appendix C to give an overview of the habitats, species and waterbodies within the vicinity of the proposed works. The Proposed Project site and surrounding landscape is shown in Figure 6-1 below.

5.1.1 Survey Works Description

Surveys include ground investigation, geophysical surveys, archaeological surveys, bathymetric surveys, benthic ecology surveys and breeding bird and bat survey works. The Survey Works are required to inform the geotechnical and ecological baseline conditions and site conditions in general. Further details of each survey methodology are given in Section 3.2.

5.2 European Sites

As outlined in Section 4, European sites which screened in for Appropriate Assessment were:

1. South Dublin Bay SAC
2. Rockabill to Dalkey Island SAC
3. Lambay Island SAC
4. Codling Fault Zone SAC
5. South Dublin Bay and River Tolka Estuary SPA
6. The Murrugh SPA
7. Dalkey Islands SPA
8. Wicklow Head SPA
9. North Bull Island SPA
10. North-West Irish Sea SPA
11. Wicklow Mountains SPA

These are described below.

1. South Dublin Bay SAC (000210): the site is designated for the following Annex I habitat of the E.U. Habitat Directive: Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], Embryonic shifting dunes [2110]. The site extends from the South Wall to Dun Laoghaire. The site includes the largest extent of dwarf eelgrass (*Zostera noltii*) and it includes beaches with incipient dune formation, sand and mudflats, and small areas of early stages of saltmarsh. The site is also important for waterfowl. Licence Area A is located within the site (NPWS, 2013a, 2015).
2. Rockabill to Dalkey Island SAC (003000): the site is designated for the following habitats and species listed in Annex I/Annex II habitat of the E.U. Habitat Directive: reefs [1170] and Harbour Porpoise (*Phocoena phocoena*) [1351]. This site extends southwards, in a strip approximately 7 km wide and 40 km in length, from Rockabill to Howth Head, crossing Dublin Bay to Frazer Bank. The site includes inshore and coastal waters, sandy and muddy seabed, sandbanks, reefs and island. The site is located 4km east from Proposed Works and it is hydrologically linked over 4.5km (NPWS, 2013b; 2014).

3. Lambay Island SAC (000204): the site is designated for the following habitats and species listed in Annex I/Annex II habitat of the E.U. Habitat Directive: reefs [1170], vegetated sea cliffs of the Atlantic and Baltic coasts [1230], harbour porpoise (*Phocoena phocoena*) [1351], Grey Seal (*Halichoerus grypus*) [1364], Harbour Seal (*Phoca vitulina*) [1365]. The site is an island located 4km from Portrane and 21.8km north east of the Proposed Works, and hydrologically linked over 23.2km (NPWS2013c; 2024).
4. Codling Fault Zone SAC (003015): the site is designated for the following habitats and species listed in Annex I/Annex II habitat of the E.U. Habitat Directive: submarine structures made by leaking gases [1180], harbour porpoise [1351] the site is located at 24km of Howth Head within the Irish Sea and characterised by bubbling reefs and structures within pockmarks. The site is 28.5km north east of the Proposed Works and hydrologically linked over the same distance (NPWS 2023c; 2024b)
5. South Dublin Bay and River Tolka Estuary SPA (004024): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: light-bellied brent goose (*Branta bernicla hrota*) [A046], oystercatcher (*Haematopus ostralegus*) [A130], ringed plover (*Charadrius hiaticula*) [A137], grey plover (*Pluvialis squatarola*) [A141], knot (*Calidris canutus*) [A143], sanderling (*Calidris alba*) [A144], dunlin (*Calidris alpina*) [A149], bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], black-headed gull (*Chroicocephalus ridibundus*) [A179], roseate tern (*Sterna dougallii*) [A192], common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194], wetland and waterbirds [A999]. The site includes part of Dublin Bay and includes the intertidal area between the River Liffey and Dun Laoghaire, the estuary of the River Tolka and Booterstown Marsh, and areas of marine waters of the bay. Licence Area A is located within the SPA (NPWS 2015a).
6. The Murrough SPA (004186): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: red-throated diver (*Gavia stellata*) [A001], greylag goose (*Anser anser*) [A043], light-bellied brent goose [A046], wigeon (*Mareca Penelope*) [A050], teal (*Anas crecca*) [A052], black-headed gull [A179], herring gull (*Larus argentatus*) [A184], little tern (*Sterna albifrons*) [A195], wetland and waterbirds [A999]. The site extends for 13km from Kilcoole to Wicklow Town and it includes an area of marine water. Licence Area D is located within the SPA (NPWS, 2022a)
7. Dalkey Islands SPA (004172): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: roseate tern [A192], common tern [A193] and Arctic tern [A194]. The site includes Dalkey Island, Lamb Island and Maiden Rock, the intervening rocks and reefs, and the surrounding sea to a distance of 200 m. The site is located 0.5km north east of the Proposed Works and hydrologically linked over the same distance (NPWS 2022b).
8. Wicklow Head SPA (004127): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: kittiwake (*Rissa tridactyla*) [A188]. The site is located 3km south of Wicklow Town and is characterised by a rocky headland with exposure of mica-schist. The site is located 2.5km south east of the Proposed Works and hydrologically linked over the same distance (NPWS 2022c).
9. North Bull Island SPA (004006): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: light-bellied brent goose [A046], shelduck (*Tadorna tadorna*) [A048], teal [A052], pintail (*Anas acuta*) [A054], shoveler (*Spatula clypeata*) [A056], oystercatcher [A130], golden plover (*Pluvialis apricaria*) [A140], grey plover [A141], knot [A143], sanderling [A144], dunlin [A149], black-tailed godwit (*Limosa limosa*) [A156], bar-tailed godwit [A157], curlew (*Numenius arquata*) [A160], redshank [A162], turnstone (*Arenaria interpres*) [A169], black-headed gull [A179], wetland and waterbirds [A999]. This site extends along the inner part of north Dublin Bay, from the Bull Wall lighthouse to Howth Head. The site is located 4.8km north east of the Proposed Works and hydrologically linked over the same distance (NPWS 2015b).
10. North-West Irish Sea SPA (004236): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: red-throated diver [A001], great northern diver (*Gavia immer*) [A003], fulmar (*Fulmarus glacialis*) [A009], Manx shearwater (*Puffinus puffinus*) [A013],

cormorant (*Phalacrocorax carbo*) [A017], shag (*Phalacrocorax aristotelis*) [A018], common scoter (*Melanitta nigra*) [A065], little gull (*Larus minutus*) [A177], black-headed gull [A179], common gull (*Larus canus*) [A182], lesser black-backed gull (*Larus fuscus*) [A183], herring gull [A184], great black-backed gull (*Larus marinus*) [A187], kittiwake [A188], roseate tern [A192], common tern [A193], Arctic tern [A194], little tern [A195], guillemot (*Uria aalge*) [A199], razorbill (*Alca torda*) [A200], puffin (*Fratercula arctica*) [A204]. It includes estuaries, bays, intertidal and shallow subtidal habitats and pelagic and marine waters. The site is located 4.8km north east of the Proposed Works and hydrologically linked over the same distance (NPWS, 2023d).

11. Wicklow Mountains SPA (004040): the site is designated under the E.U. Birds Directive, of special conservation interest for the following species: merlin (*Falco columbarius*) [A098], peregrine (*Falco peregrinus*) [A103]. The site comprised an extent area of Wicklow Mountains. The site is located 9.4 km west of the Proposed Works and not hydrologically connected (NPWSm 2022d).

5.3 Qualifying Interests Potentially Exposed to Risk

5.3.1 Qualifying Interest Habitats – South Dublin Bay SAC

The habitats recorded within Licence Area A are shown in Appendix A, Figure 3. Table 5.1 summarises the GI surveys being undertaken in each QI habitat within South Dublin Bay SAC. The majority of the GI surveys will be taking place within mudflats and sandflats not covered by seawater at low tide. No floral species were present within this habitat. No GI surveys are being undertaken within annual vegetation of drift lines [1210], however this habitat may be impacted by the rig travelling across embryonic dunes and at the high-water line.

Table 5.1: Geotechnical Investigation works occurring within Qualifying Interest habitats

QI habitat	Activity	Count
Mudflats and sandflats not covered by seawater at low tide [1140]	Windowless sample	16
	Hand-dug trial pit	1
	Slit trench works	14
	Dynamic Core Penetrometer test	1
	Sediment sampling	3
Salicornia and other annuals colonizing mud and sand [1310]	Windowless sample	2
	Slit trench works	2
Embryonic shifting dunes [2110]	Slit trench works	1

5.3.2 Qualifying Interest Species - Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC

A desk-based review of the NBDC on the 23 May 2024 found a number of records from the last 20 years of QI species located within 1km of the Licence Areas. These records are outlined in Table 5.2. Harbour porpoise and grey seal were recorded within or from all Licence Areas. Common Seal was less frequent with only four records across all licence areas.

Table 5.2: Results of the NBDC desk-based review of QI species of a European Site within the Zol.

Species	Designation	Licence area	Number of records	Most recent record
		Licence Area A	7	2018

Species	Designation	Licence area	Number of records	Most recent record
Harbour Porpoise (<i>Phocoena phocoena</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area B	193	2020
		Licence Area C	88	2020
		Licence Area D	44	2021
Common Seal (<i>Phoca vitulina</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	2	2018
		Licence Area C	-	-
		Licence Area D	2	2018
Grey Seal (<i>Halichoerus grypus</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	7	2021
		Licence Area B	21	2021
		Licence Area C	34	2021
		Licence Area D	39	2022

During walkover surveys in May 2023 a peak count of 90 grey seals were recorded on rocks around Dalkey Island, in the vicinity of Licence Area B. Lone grey and common seals were also recorded within Licence Areas C and D. A single harbour porpoise was recorded within Licence Area B.

5.3.3 Qualifying Interest Species - South Dublin Bay and River Tolka Estuary SPA, The Murrough SPA, Dalkey Island SPA, Wicklow Head SPA, North Bull Island SPA, North-West Irish Sea SPA and Wicklow Mountains SPA

A desk-based review of the NBDC on the 2 February 2023 found a number of records from the last 20 years of protected bird species within 1km of the Survey Works. Records for all designated qualifying interest bird species (QIs) were returned. A 1km buffer was chosen to capture all flora and fauna species which occur or frequently use habitats under the footprint of the Survey Works. A 1km buffer reflects the typical species array for both mobile and sessile species in the vicinity of the Survey Works. Results are included at Appendix C.

Records from Irish Wetland Bird Surveys (I-WeBS) were received from BirdWatch Ireland. I-WeBS collects data on wintering wildfowl and waders each year at a number of sites across Ireland. Each licence area has a corresponding I-WeBS survey site and subsites, as shown in Table 5.3. Peak counts of Annex I and QI bird species during the 2022/23 season are shown in Appendix B, Table 1Table 1.

Table 5.3: Licence areas and corresponding I-WeBS sites and subsites.

Licence Area	I-WeBS sites	I-WeBS subsites
A	Dublin Bay (OU404)	Merrion Gates – Sydney Parade Ave (OU473) Booterstown – Merrion Gates (OU462) Booterstown Reserve (OU461) Dun Laoghaire – Seapoint (OU460)
B	South Dublin Coastline (OU915)	Killiney Beach and Bay (OU916)
C	Bray Harbour (OT907) Bray Beach (OT913) Greystones (OT905)	Bray Harbour (OT907) Bray Beach (OT913) Greystones (OT905)
D	North Wicklow Coastal Marshes (OT401)	Kilcoole – north fields (OT501) Kilcoole – Newcastle (OT903) Kilcoole – Webbs (OT502) Kilcoole – west fields (OT503)

Licence Area	I-WeBS sites	I-WeBS subsites
		Five Mile Point – Newcastle (OT902) Five Mile Point – Newcastle (offshore) (OT914) Killougher- Newcastle (Beach & offshore) (OT910) Killougher – Newcastle (Inland: Marsh & Farmland) (OT911) Broad Lough (OT001)

During the winter bird surveys a total of 36 QI bird species were recorded within the Licence Areas. The majority of activity was within Licence Areas A and D with 26 and 32 QI bird species respectively. The number and location of QI bird species recorded during the survey are summarized in Appendix B, Table 2. The QI species pintail was not recorded during the wintering bird surveys. Puffin, Manx shearwater, roseate tern, common tern, Arctic tern and little tern were not recorded during the wintering bird surveys, however they are unlikely to present during the survey period due to their migration patterns.

During the breeding bird surveys a total of 23 QI bird species were recorded within the Licence Areas. Of these 18 were confirmed or probably breeding within or in the vicinity of the Licence Areas. The number and location of QI bird species recorded during the surveys are summarized in Appendix B, Table 3. The QI species roseate tern was not recorded during the surveys but possibly breeds in small numbers in the vicinity of Licence Area B. A number of QI species, including bat-tailed godwit and black-tailed godwit, recorded in April are considered to have been on migration.

5.4 Appraisal of potential impacts

5.4.1 South Dublin Bay SAC

5.4.1.1 Qualifying interest habitats within Zol

Survey Works will be undertaken within the SAC in Licence Area A. All of the qualifying interest habitats are within the Zol for temporary habitat loss, namely mudflats and sandflats not covered by seawater at low tide, Salicornia and other annuals colonizing mud and sand, embryonic shifting dunes and annual vegetation of drift lines.

5.4.1.2 Appraisal of potential impacts

GI survey works will be undertaken within the SAC, resulting in temporary habitat loss. Temporary habitat loss will occur through both the digging of the investigation works and the transport of required equipment and vehicles across the SAC. No other Survey Works are within the Zol for temporary habitat loss. Mitigation measures to avoid potential impacts are detailed in Section 6.1.

5.4.2 Rockabill to Dalkey Island SAC

5.4.2.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Harbour Porpoise is within the Zol for disturbance.

5.4.2.2 Appraisal of potential impacts

Bathymetric survey works will be undertaken within functionally linked habitat for harbour porpoise within all Licence Areas. Disturbance could occur through movement and presence of the survey vessels and high frequency waves created by survey equipment. No other Survey Works are within the Zol for disturbance of harbour porpoise. Mitigation measures to avoid potential impacts are detailed in Section 6.2.

5.4.3 Lambay Island SAC

5.4.3.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Harbour Porpoise, grey seal and harbour seal are within the Zol for disturbance.

5.4.3.2 Appraisal of potential impacts

Bathymetric survey works will be undertaken within functionally linked habitat for harbour porpoise, grey seal and harbour seal within all Licence Areas. Boat-based ecology surveys will be undertaken within functionally linked habitat for grey and harbour seal within Licence Area C. Disturbance could occur through movement and presence of the survey vessels and high frequency waves created by survey equipment. Grey and harbour seals will be more likely to be impacted by survey vessels within the vicinity of haul out locations. Mitigation measures to avoid potential impacts are detailed in Section 6.2.

5.4.4 Codling Fault Zone SAC

5.4.4.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Harbour Porpoise is within the Zol for disturbance.

5.4.4.2 Appraisal of potential impacts

Bathymetric survey works will be undertaken within functionally linked habitat for harbour porpoise within all Licence Areas. Disturbance could occur through movement and presence of the survey vessels and high frequency waves created by survey equipment. No other Survey Works are within the Zol for disturbance of harbour porpoise. Mitigation measures to avoid potential impacts are detailed in Section 6.2.

5.4.5 South Dublin Bay and River Tolka Estuary SPA

5.4.5.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Light-bellied Brent goose, oystercatcher, ringed plover, grey plover, knot, sanderling, dunlin, bar-tailed godwit, redshank, black-headed gull, roseate tern, common tern and Arctic tern are within the Zol for disturbance.

5.4.5.2 Appraisal of potential impacts

GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works will be undertaken within the SPA in Licence Area A. In addition, benthic ecology surveys and archaeology survey works will be undertaken within supporting and functionally linked habitat in Licence Areas B, C and D. The species most susceptible to disturbance within the intertidal zone, namely light-bellied brent goose, oystercatcher, ringed plover, grey plover, knot, sanderling, dunlin, bar-tailed godwit and redshank, are present in significant numbers

between October and April. In addition, oystercatcher and ringed plover have been confirmed to breed within Licence Area D. Disturbance could occur through presence of surveyors within suitable habitat and noise from surveys.

Bathymetric survey works and boat-based ecology surveys, have the potential for disturbance to black-headed gull, roseate tern, common tern and Arctic tern. GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works have the potential to disturb these species at low tide roosts. Roseate tern, common tern and Arctic tern are only present between May and September. Disturbance could occur through the presence of surveyors with suitable roosting areas and where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.6 The Murrough SPA

5.4.6.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Red-throated diver, greylag goose, light-bellied brent goose, wigeon, teal, black-headed gull, herring gull and little tern are within the Zol for disturbance.

5.4.6.2 Appraisal of potential impacts

Benthic ecology surveys and archaeology survey works will be undertaken within the SPA in Licence Area D. In addition, GI and geotechnical survey works will be undertaken within supporting and functionally linked habitat in Licence Areas A. Benthic ecology surveys and archaeology survey works will be undertaken within Licence Areas A, B and C. Light-bellied brent goose, greylag goose, wigeon and teal are only present in significant numbers between October and April. Little tern breed within the upper shore during April to August. Disturbance could occur through presence of surveyors within suitable habitat and noise from surveys.

Bathymetric survey works and boat-based ecology surveys, have the potential for disturbance to red-throated diver, black-headed gull, herring gull and little tern within all Licence Areas. Red-throated diver are only present in significant numbers between October and March. Disturbance could occur where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.7 Dalkey Islands SPA

5.4.7.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Roseate tern, common tern and Arctic tern are within the Zol for disturbance.

5.4.7.2 Appraisal of potential impacts

Bathymetric survey works have the potential for disturbance to roseate tern, common tern and Arctic tern within all Licence Areas. Boat-based ecology surveys have the potential for disturbance to these species within Licence Area C. GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works have the potential to disturb these species at low tide roosts. Roseate tern, common tern and Arctic tern are only present between May and September. Disturbance could occur through the presence of surveyors with suitable roosting areas and where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.8 Wicklow Head SPA

5.4.8.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Kittiwake are within the Zol for disturbance.

5.4.8.2 Appraisal of potential impacts

Bathymetric survey works have the potential for disturbance to kittiwake within all Licence Areas. Boat-based ecology surveys have the potential for disturbance within Licence Area C. Kittiwakes are present all year round but more common within the Licence Areas during April to October. Disturbance could occur through the presence of survey vessels within breeding areas in Licence Area C and where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.9 North Bull Island SPA

5.4.9.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Light-bellied brent goose, shelduck, teal, pintail, shoveler, oystercatcher, golden plover, grey plover, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, turnstone and black-headed gull are within the Zol for disturbance.

5.4.9.2 Appraisal of potential impacts

GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works will be undertaken within supporting habitat in Licence Area A. In addition, benthic ecology surveys and archaeology survey works will be undertaken within supporting and functionally linked habitat in Licence Areas B, C and D. The species most susceptible to disturbance within the intertidal zone, namely light-bellied brent goose, shelduck, teal, oystercatcher, golden plover, grey plover, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, turnstone and black-headed gull, are only present in significant numbers between October and April. In addition, oystercatcher and ringed plover have been confirmed to breed within Licence Area D. Disturbance could occur through presence of surveyors within suitable habitat and noise from surveys. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.10 North-West Irish Sea SPA

5.4.10.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Red-throated Diver, great northern diver, fulmar, Manx shearwater, cormorant, shag, common scoter, little gull, black-headed gull, common gull, lesser black-backed gull, herring gull, great black-backed gull, kittiwake, roseate tern, common tern, Arctic tern, little tern, guillemot, razorbill and puffin are within the Zol for disturbance.

5.4.10.2 Appraisal of potential impacts

Bathymetric survey works have the potential for disturbance within all Licence Areas. Boat-based ecology surveys have the potential for disturbance within Licence Area C. Red-throated diver, great northern diver, common scoter and little gull are only present in significant numbers during October to March. Manx shearwater, puffin, roseate tern, common tern, Arctic tern and little tern are only present between April and September. Disturbance could occur where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

Bathymetric survey works have the potential for disturbance within all Licence Areas. Boat-based ecology surveys have the potential for disturbance within Licence Area C. GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works will be undertaken within supporting habitat in Licence Area A. In addition, benthic ecology surveys and archaeology survey works will be undertaken within supporting and functionally linked habitat in Licence Areas B, C and D. Black-headed gull and common gull are present all year round with most significant numbers present between October and April. Disturbance could occur through the presence of surveyors with suitable roosting areas and where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

Bathymetric survey works have the potential for disturbance within all Licence Areas. Boat-based ecology surveys have the potential for disturbance within Licence Area C. Fulmar, cormorant, shag, lesser black-backed gull, herring gull, great black-backed gull, kittiwake, guillemot and razorbill are present all year round. Higher numbers are recorded during April to September. Disturbance could occur through the presence of survey vessels within breeding areas in Licence Area B and C and where survey vessels are present within suitable foraging areas for prolonged periods. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

5.4.11 Wicklow Mountains SPA

5.4.11.1 Qualifying interest species within Zol

No qualifying interest habitats are present within the Zol. Merlin and peregrine are within the Zol for disturbance.

5.4.11.2 Appraisal of potential impacts

GI survey works, geotechnical survey works, benthic ecology surveys and archaeology survey works will be undertaken within functionally linked habitat in Licence Area A. In addition, benthic ecology surveys and archaeology survey works will be undertaken within functionally linked habitat in Licence Areas B, C and D. Merlin has been recorded within Licence Area D and will most likely be present between September and March. Peregrine have been recorded in Licence Areas D between October and March. It is possible that breeding occurs within Licence Area C due to a record in suitable habitat in April. Disturbance could occur through the presence of surveyors within suitable foraging areas. Mitigation measures to avoid potential impacts are detailed in Section 6.3.

6. Mitigation measures

Mitigation measures to be put in place to avoid potential impacts are detailed below. A summary is provided in Table 7.1.

6.1 Temporary Habitat Loss

These mitigation measures will be put in place to avoid potential impacts on South Dublin Bay SAC.

6.1.1 Ecological Clerk of Works

An on-site Ecological Clerk of Works (ECoW) will be on site for any works deemed sensitive i.e. within European sites. The ECoW will be at sensitive locations where there is potential for disturbance to QI habitats and implement mitigation measures as described below. Prior to the GI works the ECoW will deliver a toolbox talk to all personnel to highlight the environmental sensitivities and the boundaries of sensitive habitats.

6.1.2 Windowless Samples

A total of 18 windowless samples will be undertaken within the South Dublin Bay SAC. Two samples will be taken within the habitat, *Salicornia* and other annuals colonizing mud and sand and sixteen within mudflats and sandflats visible at low tide. To avoid damage to flora in these sensitive areas and when tracking across the intertidal areas the drilling rig will be mounted onto rubber tracks and, following guidance by the ECoW, avoid any vegetated areas, where possible. Backfilling will be made using extracted soil horizons on the same day. Due to their small size and location, the extraction points will be naturally reprofiled by the incoming tide.

6.1.3 Slit Trenches

A total of 17 slit trenches will be undertaken within the South Dublin Bay SAC. These will be backfilled in the order it was excavated on the same day. In order to achieve this, any soil risings / beach sediment will be placed adjacent to the pit on a tarpaulin or similar material. Fourteen of the slit trenches will be undertaken within the mudflats and sandflats visible at low tide. Due to their location within the intertidal area, the trenches will then be reprofiled by the incoming tide. In addition, two slit trenches will be within *Salicornia* and other annuals colonizing mud and sand and another one within embryonic dunes. To avoid damage to flora in these sensitive areas and when tracking across the intertidal areas the drilling rig will be mounted onto rubber tracks and, following guidance by the ECoW, avoid any vegetated areas, where possible.

6.2 Disturbance to QI Marine Mammals

6.2.1 Bathymetric Surveys

These mitigation measures will be put in place to avoid potential impacts on Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC.

A qualified Marine Mammal Observer (MMO) will be present to monitor for marine mammals following NPWS guidelines, where relevant (NPWS, 2006). All relevant events will be logged using standardised data forms. Monitoring will be conducted prior to commencement of operations for 60 minutes to ensure no marine mammals are present within the 2000m disturbance area. Should any marine mammals be detected any surveys will be delayed until the species have left the relevant zone of disturbance with an additional 30-minute buffer period from the last sighting.

At the beginning of the survey period there will be a gradual increase to peak frequency output over 20 minutes. This will provide any undetected marine mammals time to leave the disturbance area. If a marine mammal is detected during this start-up period, the frequency will not be increased until it has left the 2000m disturbance zone. If there is a break in the output over 5-minutes than pre-commencement checks and gradual start-up should be repeated.

6.2.2 Ecology Boat Surveys

These mitigation measures will be put in place to avoid potential impacts on Lambay Island SAC.

These surveys will be closer to shore and not creating major noise, however there is the possibility to disturb grey seals and harbour seals at haul out locations. To minimise disturbance the small vessel will not exceed 5 knots within the survey area. Where a haul out is identified the distance from the area will be increased from 100m up to 400m to minimise the potential to flush seals off land. The experienced helmsman will also slow the boat or steer away from any seals that are present within the water during the surveys.

6.3 Disturbance to QI Bird Species

6.3.1 Bathymetric Surveys

These mitigation measures will be put in place to avoid potential impacts on South Dublin Bay and Tolka Estuary SPA, The Murrough SPA, Dalkey Island SPA, Wicklow Head SPA and North West Irish Sea SPA.

To minimise disturbance to seabirds and species foraging offshore, the surveys will be undertaken outside of the important breeding season (April-August) and the peak wintering bird season (December-February). Where large feeding flocks are present within the survey path, these will be approached under 5 knots or avoided, where possible.

6.3.2 Ecology Boat Surveys

These mitigation measures will be put in place to avoid potential impacts on South Dublin Bay and Tolka Estuary SPA, The Murrough SPA, Dalkey Island SPA, Wicklow Head SPA and North West Irish Sea SPA.

To minimise disturbance from these surveys the small boat will be kept at a speed below 5 knots and a minimum distance of 100m from the cliff. This will be increased up to 400m dependant on any visual signs of disturbance amongst the breeding seabirds. The boat will only stop in locations for long enough to complete the surveys before moving on. Human noise within the boat will be kept to a minimum.

6.3.3 Intertidal Surveys

These mitigation measures will be put in place to avoid potential impacts on South Dublin Bay and Tolka Estuary SPA, The Murrough SPA, Dalkey Island SPA, North Bull Island SPA, North West Irish Sea SPA and Wicklow Mountains SPA.

GI, Geophysical, metal detector surveys and benthic ecology surveys are being undertaken within intertidal areas within the Licence Area A. Metal detector surveys and benthic surveys will be undertaken in Licence Areas B, C and D.

GI and geophysical surveys will be more likely to cause disturbance at a greater distance due to the creation of noise from machinery and the use of a drop weight. Disturbance will be minimised by conducting surveys outside of the peak wintering bird period (October-April). In addition, these surveys will be temporary and localised in a

small area to allow bird species to utilise other habitat within the South Dublin Bay and Tolka Estuary SPA for foraging.

Metal detector and benthic surveys will take place within the intertidal areas. These surveys will not produce a high noise disturbance, will be temporary and localised within a small area. To minimise disturbance to wintering birds in Licence Areas A, B and C, these surveys will be undertaken outside of the wintering bird season (October-April) and independently from other surveys, including GI and geophysical surveys, therefore producing a lower level of disturbance and increasing the additional areas available for foraging bird species. Due to the presence of breeding QI bird species on the foreshore in Licence Area D, surveys will take place outside of April – August. The majority of wintering birds present in Licence Area D do not utilise the area within the Survey Works and therefore work can be undertaken within October to March if required.

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7. Residual Impact Assessment

Based on the best available scientific information and professional judgement, it is considered that with the mitigation measures detailed above, the LSEs identified are considered to be avoided or minimised to such an extent that there will be no adverse effects on the integrity of any European sites. Table 7.1 below summarises the LSEs, the relevant mitigation and assessment against any residual impacts.

Table 7.1: Summary of European sites and relevant mitigation methods.

European sites	LSEs	Mitigation measures	Residual effects?
Special Areas of Conservation (SACs)			
South Dublin Bay SAC (000210) 0m. Within Licence Area A	Habitat loss - temporary from GI and intertidal cores within Licence Area A	ECOW - toolbox talk and oversee GI works Avoid sensitive areas of flora as guided by ECoW Rubber tracking on vehicles Backfilling using extracted soil and beach sediment	None. Following these measures any adverse effects will be minimised to ecological inconsequence.
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Disturbance of species during bathymetric surveys	MMO present Checks prior to commencement Gradual increase to peak frequency	None. Following these measures any adverse effects will be minimised to ecological inconsequence.
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Disturbance of species during bathymetric surveys and ecology boat surveys	MMO present for bathymetric surveys Checks prior to commencement Gradual increase to peak frequency Slow speed for ecology boat surveys Avoidance of seal haul out areas	None. Following these measures any adverse effects will be minimised to ecological inconsequence.
Codling Fault Zone SAC (003015) 28.5km north east direct distance	Disturbance of species during bathymetric surveys	MMO present Checks prior to commencement Gradual increase to peak frequency	None. Following these measures any adverse effects will be minimised to ecological inconsequence.

European sites	LSEs	Mitigation measures	Residual effects?
and hydrological distance			
Special Protection Areas (SPAs)			
<p>South Dublin Bay and River Tolka Estuary SPA (004024)</p> <p>Om. Within Licence Area A</p>	<p>Disturbance of species during all Survey Works within intertidal and subtidal zones</p>	<p>Intertidal surveys undertaken outside peak wintering bird season in Licence Areas A, B and C and outside breeding bird season in Licence Area D.</p> <p>Bathymetric surveys undertaken outside breeding bird season.</p> <p>Minimise disturbance by only working in localised areas at one time and limiting noise.</p>	<p>None. Following these measures any adverse effects will be minimised to ecological inconsequence.</p>
<p>The Murrugh SPA (004186)</p> <p>Om. Within Licence Area D</p>	<p>Disturbance of species during all Survey Works within intertidal and subtidal zones</p>	<p>Intertidal surveys undertaken outside peak wintering bird season in Licence Areas A, B and C and outside breeding bird season in Licence Area D.</p> <p>Bathymetric surveys undertaken outside breeding bird season.</p> <p>Minimise disturbance by only working in localised areas at one time and limiting noise.</p>	<p>None. Following these measures any adverse effects will be minimised to ecological inconsequence.</p>
<p>Dalkey Islands SPA (004172)</p> <p>0.5km north east both direct distance and hydrological distance</p>	<p>Disturbance of species during all Survey Works within intertidal and subtidal zones</p>	<p>Bathymetric surveys undertaken outside breeding bird season.</p> <p>Minimise disturbance by only working in localised areas at one time and limiting noise.</p>	<p>None. Following these measures any adverse effects will be minimised to ecological inconsequence.</p>
<p>Wicklow Head SPA (004127)</p> <p>2.5km south east both direct distance and hydrological distance</p>	<p>Disturbance of species during all Survey Works within intertidal and subtidal zones</p>	<p>Bathymetric surveys undertaken outside breeding bird season.</p> <p>Minimise disturbance by only working in localised areas at one time and limiting noise.</p>	<p>None. Following these measures any adverse effects will be minimised to ecological inconsequence.</p>

European sites	LSEs	Mitigation measures	Residual effects?
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Disturbance of species during all Survey Works within intertidal and subtidal zones	Intertidal surveys undertaken outside peak wintering bird season in Licence Areas A, B and C and outside breeding bird season in Licence Area D. Minimise disturbance by only working in localised areas at one time and limiting noise.	None. Following these measures any adverse effects will be minimised to ecological inconsequence.
North-West Irish Sea SPA (004236) 4.8km north east both direct distance and hydrological distance;	Disturbance of species during all Survey Works within intertidal and subtidal zones	Bathymetric surveys undertaken outside breeding bird season. Minimise disturbance by only working in localised areas at one time and limiting noise.	None. Following these measures any adverse effects will be minimised to ecological inconsequence.
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Disturbance of species during all Survey Works within foreshore and intertidal zones	Intertidal surveys undertaken outside peak wintering bird season in Licence Areas A, B and C	None. Following these measures any adverse effects will be minimised to ecological inconsequence.

8. In-Combination Assessment

In order to take account of in-combination effects, plans and projects that are completed, approved but uncompleted, or proposed (but not yet approved) should be considered in this context (European Commission 2021a).

A search of the National Planning Application Database (NPAD) (DHLGH, accessed April 2024), Fingal and Wicklow County Council planning portals (accessed April 2024), Dublin City Council planning portal (accessed April 2024), An Bord Pleanála planning portal (accessed April 2024), foreshore licence application search (gov.ie and maritimeregulator.ie, accessed May 2024) and general web searches for major infrastructure projects and plans in the vicinity of the Survey Works in the last five years has been undertaken as part of the Screening Assessment to identify other plans and projects that may contribute to in-combination effects.

8.1 Assessment of In-Combination Effects

The search identified 22 projects which were considered to have the potential for in-combination effects on habitat loss- temporary and disturbance of species. These are assessed in Table 8.1 below.

Table 8.1: Assessment of In-Combination Effects.

Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Fingal County Development Plan 2023-2029	Fingal County Council	This plan aims to support the sustainable long-term development within Fingal.	Lambay Island SAC Rockabill to Dalkey Island SAC North Bull Island SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Dublin City Development Plan 2022-2028	Dublin City Council	This plan aims to support the sustainable long-term development within Dublin.	South Dublin Bay and River Tolka Estuary SPA North Bull Island SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Wicklow County Development Plan	Wicklow County Council	This plan aims to support the sustainable long-term development within Wicklow	The Murrough SPA Wicklow Head SPA Wicklow	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Mac Lir Offshore Wind Array (FS007472)	-	Site investigations and benthic surveys within a potential offshore export cable corridor. Foreshore licence applied.	South Dublin Bay SAC Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC South Dublin Bay and River Tolka Estuary SPA The Murrough SPA Dalkey Island SPA	Habitat loss - temporary Disturbance of species	The AA screening concluded that there would be no LSEs on any European designated sites. Given the temporary and localised nature of the works, the in-combination effects are considered insignificant.	No

Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
			North Bull Island SPA Wicklow Head SPA North West Irish Sea SPA			
Leinster Offshore Wind Array (FS007162)	-	Site investigations for proposed offshore wind farm off Dublin. Foreshore licence applied.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC Head SPA North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Greystones Offshore Wind Array (FS007367)	-	Site investigations for proposed offshore wind farm off Greystones. Foreshore licence applied.	South Dublin Bay SAC Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC South Dublin Bay and River Tolka Estuary SPA The Murrough SPA Dalkey Island SPA North Bull Island SPA Wicklow Head SPA	Habitat loss - temporary Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

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Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
			North West Irish Sea SPA			
Réalt na Mara Offshore Wind Array (FS007330)	-	Site investigations for proposed offshore wind farm off Wicklow and Dublin. Foreshore licence applied.	South Dublin Bay SAC Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC South Dublin Bay and River Tolka Estuary SPA The Murrough SPA Dalkey Island SPA North Bull Island SPA Wicklow Head SPA North West Irish Sea SPA	Habitat loss - temporary Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Lir Offshore Wind Array (FS007392)	-	Site investigations for proposed offshore wind farm off Counties Louth, Meath and Dublin. Foreshore licence applied.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Irish Water Greater Dublin Drainage	City of Dublin	Construction of a 5.3km marine section of outfall	Lambay Island SAC	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

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Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Outfall (FS006843)		pipe. Foreshore licence applied.	Rockabill to Dalkey Island SAC Codling Fault Zone SAC North West Irish Sea SPA			
MaresConnect Electricity Interconnector Site Investigations (FS007635)	-	Site investigation works for an electricity interconnector between Portmaknock and Skerries, Co. Dublin. In consultation.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Statkraft North Irish Sea Array Site Investigations (FS007358)	-	Site investigations and benthic surveys within a potential offshore export cable corridor off Counties Louth, Meath and Dublin. Foreshore licence determined. Planning submission date in 2024	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC	Habitat loss - temporary Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Sea Stacks Offshore Wind Array (FS007134)	-	Site investigations for proposed offshore wind farm off Dublin and Wicklow. Foreshore licence applied.	South Dublin Bay SAC Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC South Dublin Bay and River Tolka Estuary SPA	Habitat loss - temporary Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

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Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
			The Murrough SPA Dalkey Island SPA North Bull Island SPA Wicklow Head SPA North West Irish Sea SPA			
Sunrise Offshore Wind Array (FS007151)	-	Site investigations for proposed offshore wind farm off Dublin and Wicklow. In consultation.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC The Murrough SPA Dalkey Island SPA Wicklow Head SPA North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Bray Offshore Wind Array (FS006463)	-	Construction of proposed offshore wind farm off Bray, Wicklow. Foreshore licence applied.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC The Murrough SPA Dalkey Island SPA Wicklow Head SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
			North West Irish Sea SPA			
Microsoft Ireland Operations (LIC230016)	-	Site investigations for a proposed subsea fibre optic cable from Portmarnock, Dublin to Abergele, Wales	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC South Dublin Bay and River Tolka Estuary SPA The Murrough SPA Dalkey Island SPA North Bull Island SPA Wicklow Head SPA North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Microsoft Ireland Operations (LIC230018)	-	Site investigations for a proposed subsea fibre optic cable from Dublin Port to Angelsey, Wales	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC Dalkey Island SPA Wicklow Head SPA North West Irish Sea SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

Natura Impact Statement

Name and Application Reference	Planning Authority	Description	European sites affected	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Poolbeg GIS Substation	Dublin City Council	A proposed electricity transmission development that primarily comprises the replacement and/or enhancement, and expansion of existing substation infrastructure. Includes associated GI and survey works.	South Dublin Bay and River Tolka Estuary SPA North Bull Island SPA	Disturbance of species	A Natura Impact Statement has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Kish Bank Offshore Windfarm (FS006462)	Dun Laoghaire-Rathdown County Council	500MW offshore wind farm 11km off Dublin coast. Includes associated survey works. currently in consultation.	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC Dalkey Island SPA Wicklow Head SPA North West Irish Sea SPA	Disturbance of species	Given the early stage of the application, this will have no effect in-combination with the Survey Works	No
Codling Banks Array (FS006460)	Wicklow County Council	1.3GW offshore wind farm 13km off Wicklow coast. Includes associated survey works. Currently in consultation	Lambay Island SAC Rockabill to Dalkey Island SAC Codling Fault Zone SAC Wicklow Head SPA North West Irish Sea SPA	Disturbance of species	Given the early stage of the application, this will have no effect in-combination with the Survey Works	No

8.2 Conclusions of In-Combination Effects

It can be concluded on the basis of objective information from the assessment in Table 8.1 that there is no potential for in-combination effects of the Proposed Works and other plans or projects to undermine the integrity of any European sites.

9. Conclusion

This NIS examined the potential for changes in the baseline conditions as a result of the Survey Works against the conservation objectives for the following European sites:

- South Dublin Bay SAC
- Rockabill to Dalkey Island SAC
- Lambay Island SAC
- Codling Fault Zone SAC
- South Dublin Bay and River Tolka Estuary SPA
- The Murrough SPA
- Dalkey Islands SPA
- Wicklow Head SPA
- North Bull Island SPA
- North-West Irish Sea SPA
- Wicklow Mountains SPA

The NIS details mitigation measures which have been prescribed to ensure the Survey Works will not result in adverse effects on Natura 2000 site integrity either alone or in-combination with other plans or projects.

Based on the best available scientific information and professional judgement, it is considered that with the mitigation measures detailed above, there will be no adverse effects on the integrity of those European sites, alone or in-combination with other plans or projects in light of those site's conservation objectives. The NIS contains information which the competent authorities, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Survey Works, alone or in-combination with any other plan or project, on the integrity of the relevant European sites.

10. References

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2021) *Good Practice Guidance for Habitats and Species*. Version 3. Chartered Institute of Ecology and Environmental Management, Winchester.

Cutts, N., Hemingway, K. and Spencer, J. (2013) Waterbird disturbance mitigation toolkit. Institute of Estuarine and Coastal Studies, University of Hull

Department of Environment, Heritage and Local Government (DoEHLG) (2010). *Appropriate Assessment of Plans and Proposed Schemes in Ireland*. Guidance for Planning Authorities.

Department of Housing, Local Government and Heritage (DHLGH) (Accessed April 2024). National Planning Application Map Database (NPAD)

Environmental Protection Agency (EPA) (2021). *River Waterbody Status results recorded in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003)*. Available at <https://gis.epa.ie/EPAMaps/>.

European Commission (EC) (2000). *Communication from the Commission on the Precautionary Principle*. Office for Official Publications of the European Communities, Luxembourg.

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 Commission.

European Commission (EC) (2018). *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC*.

European Commission (EC) (2021a). *Assessment of Plans and Proposed Schemes Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*

European Commission (EC) (2021b). *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive*.

ESRI (Accessed December 2023). *World Imagery*. Accessed online at <https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9#!>

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

Google Earth (Accessed December 2023). *Google Earth*. Available online at: <https://earth.google.com/web/@0,-4.3176001,0a,22251752.77375655d,35y,0h,0t,0r/data=OgMKATA>

National Biodiversity Data Centre (NBDC) (accessed April 2024). *Biodiversity Maps*. Available online at: <https://maps.biodiversityireland.ie/Map>

National Parks and Wildlife Service (NPES) (2006). *Code of Practice for Marine Scientific Research at Irish Coral Reef Special Areas of Conservation*. Version 1.1. Department of the Environment, Heritage and Local Government.

National Parks and Wildlife Service (NPWS) (2012a). *Marine Natura Impact Statements in Irish Special Areas of Conservation - A Working Document*. National Parks & Wildlife Service of the Department of Arts, Heritage & the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013a) *Conservation Objectives: South Dublin Bay SAC 000210*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

National Parks and Wildlife Service (NPWS) (2013b) *Conservation Objectives: Rockabill to Dalkey Island SAC 003000*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013c) *Conservation Objectives: Lambay Island SAC 000204*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2014). *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2015a) *Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2015b) *Conservation Objectives: North Bull Island SPA 004006*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2019a). *The Status of EU Protected Habitats and Species in Ireland*. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2019b). *The Status of EU Protected Habitats and Species in Ireland*. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2019c). *The Status of EU Protected Habitats and Species in Ireland*. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2022a) *Conservation objectives for The Murrough SPA [004186]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022b) *Conservation objectives for Dalkey Islands SPA [004172]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022c) *Conservation objectives for Wicklow Head SPA [004127]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022d) *Conservation objectives for Wicklow Mountains SPA [004040]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2023a). *Special Areas of Conservation*. SAC_ITM_2023_07. 2593190e-9a49-43a4-b4a8-9467257099fa. Downloaded from:
<http://catalogue.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/2593190e-9a49-43a4-b4a8-9467257099fa>

National Parks and Wildlife Service (NPWS) (2023b). *Special Protection Area*. SPA_ITM_2023. 2593190e-4f748046-6513-4a78-b5ca-39e2e5a8629f. Downloaded from:
<http://catalogue.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/4f748046-6513-4a78-b5ca-39e2e5a8629f>

National Parks and Wildlife Service (NPWS) (2023c) *Conservation Objectives: Codling Fault Zone SAC 003015*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2023d) *Conservation Objectives: North-west Irish Sea SPA 004236*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Roads Authority (NRA) (2010). *Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*.

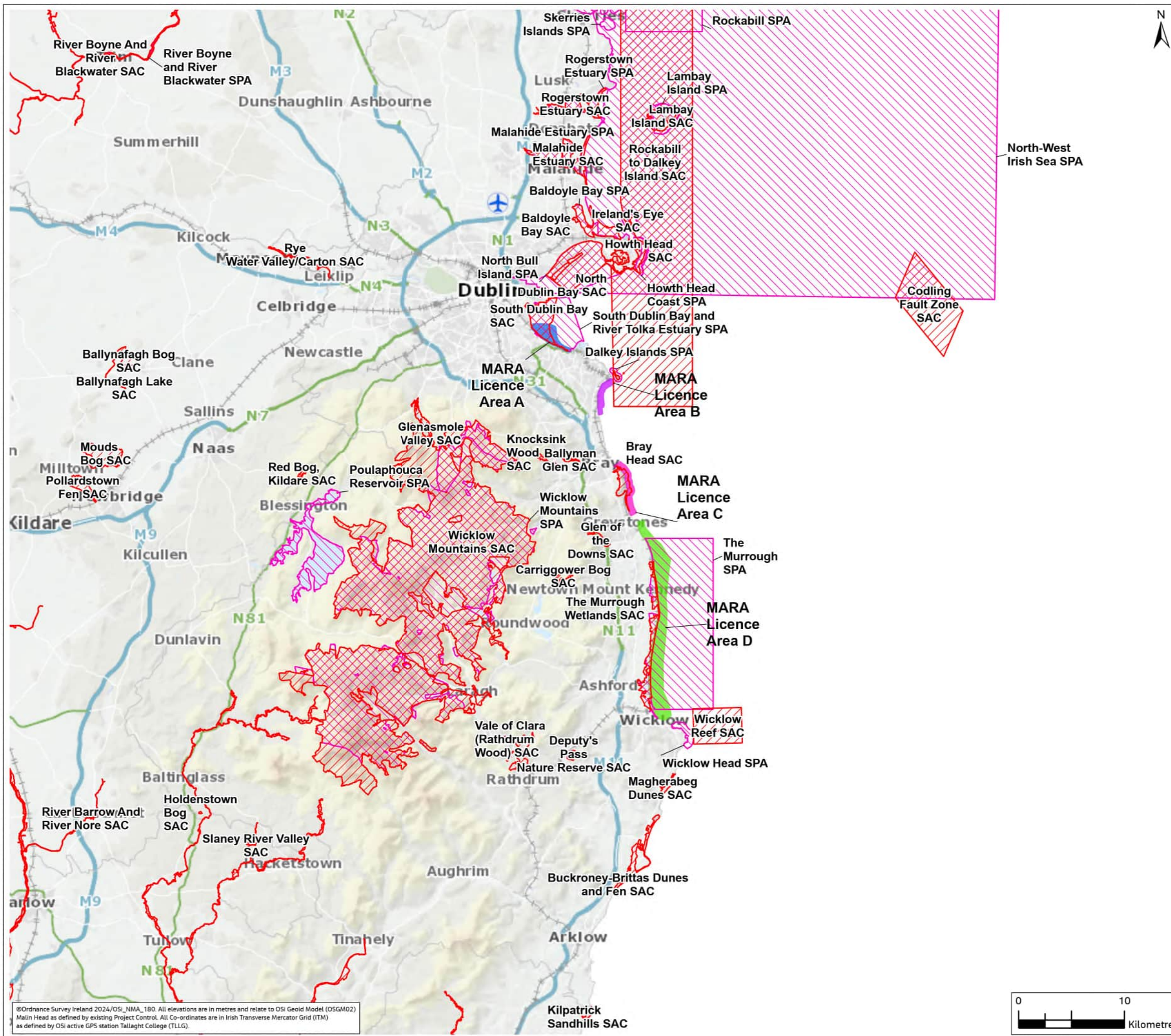
Office of the Planning Regulator (OPR) (2021). *Appropriate Assessment Screening for Development Management*. OPR Practice Note PN01.

Transport Infrastructure Ireland (TII) (2020a) *The Management of Invasive Alien Plant Species on National Roads – Standard*.

Transport Infrastructure Ireland (TII) (2020b) *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance*.

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 Number 724.

Appendix A. Figures



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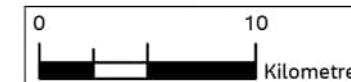


FIGURE 2

Legend

MARA Licence Area

- Area A
- Area B
- Area C
- Area D
- Special Protection Areas
- Special Area of Conservation



PD1	May 2024	For Review and Comment	SMD	SB	RH	KD
Rev	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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Drawing Title

Site location plan with SPAs & SACs

Drawing Status For Review and Comment

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Jacobs No. D3658301

Client No.

Drawing No. 7694-XX-P2-DWG-EV-JAC-0001

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FIGURE 2

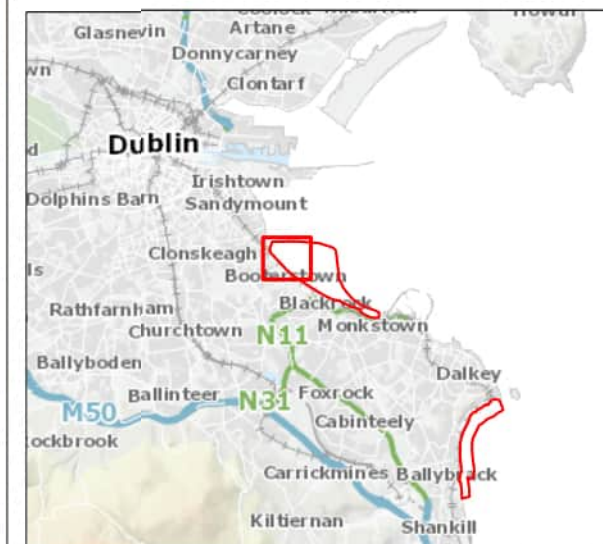
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MARA Licence Area

- Area A
- High Water Mark

Geophysical and GeoTechnical Investigations Within MARA Licence Area

- Slit Trench
- Windowless Sampler
- Geophysical Survey Area



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Drawing Title
Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 1 of 3)

Drawing Status
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D3658301

Client No.

Drawing No.
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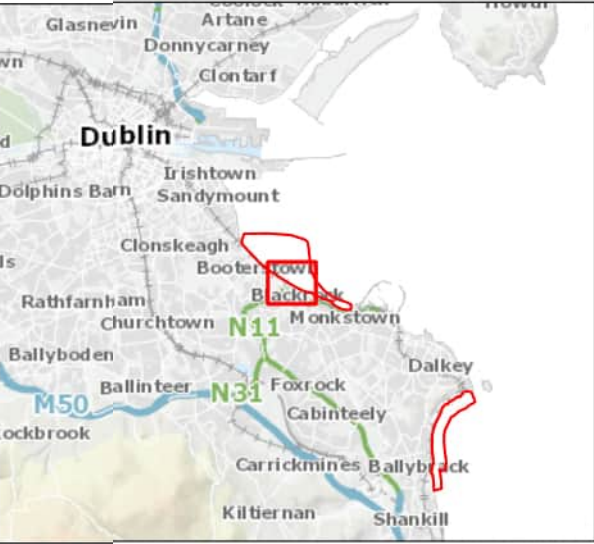
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FIGURE 2

- Legend**
- MARA Licence Area**
- Area A
 - High Water Mark
- Geophysical and GeoTechnical Investigations Within MARA Licence Area**
- Slit Trench
 - Windowless Sampler
 - DP
 - Geophysical Survey Area



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Project	

Drawing Title
Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 2 of 3)

Drawing Status	For Review and Comment
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Drawing No.	7694-XX-P2-DWG-EV-JAC-0002

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FIGURE 2

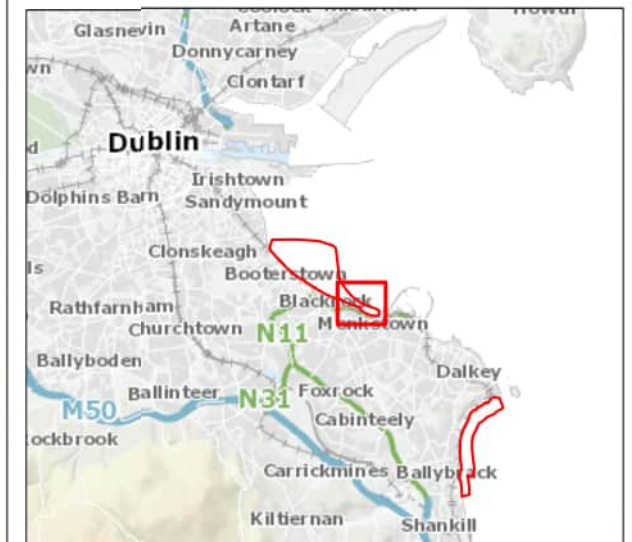
Legend

MARA Licence Area

- Area A
- High Water Mark

Geophysical and GeoTechnical Investigations Within MARA Licence Area

- Trial Pit
- Sediment Sampling
- Geophysical Survey Area



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Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 3 of 3)

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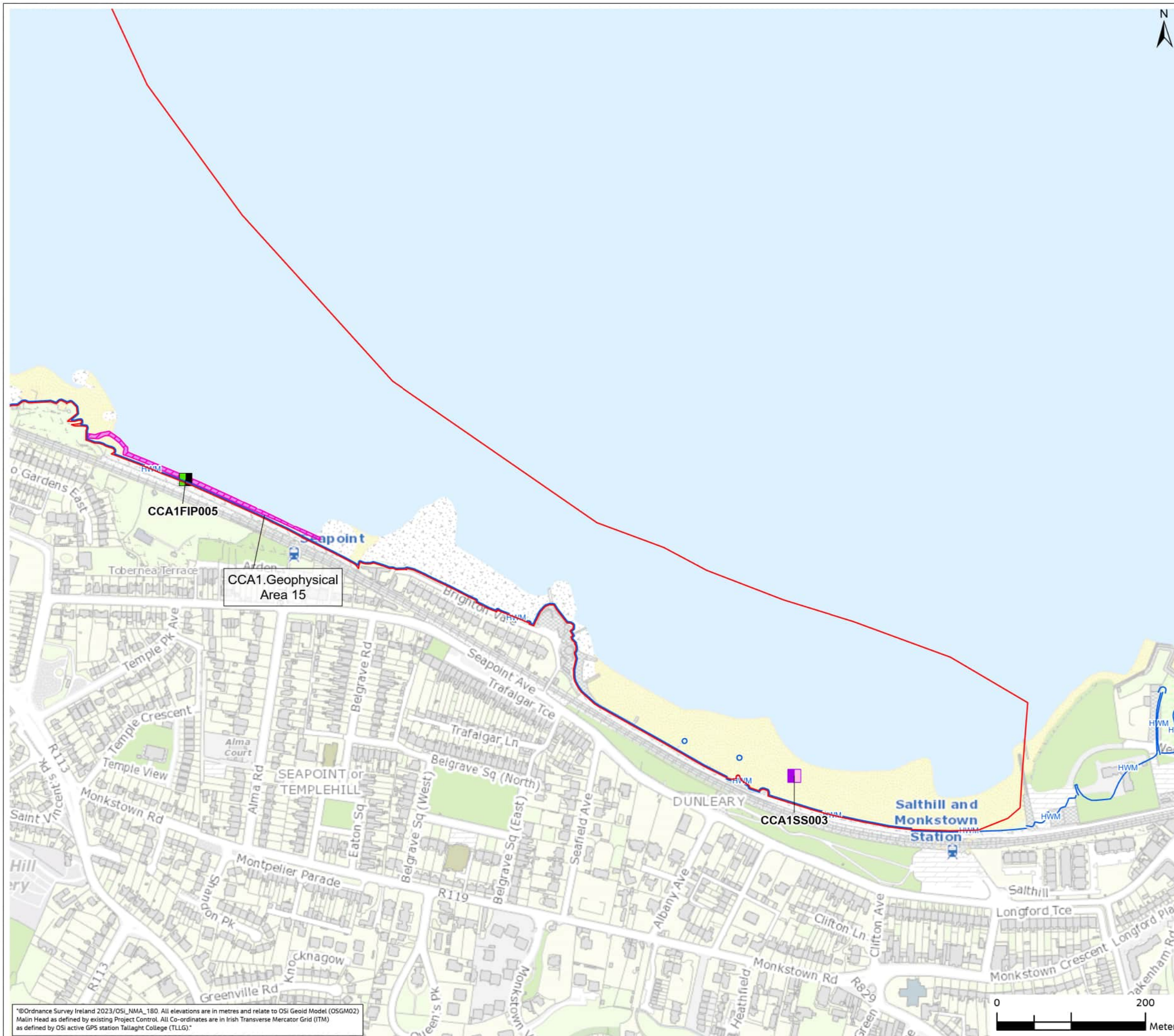
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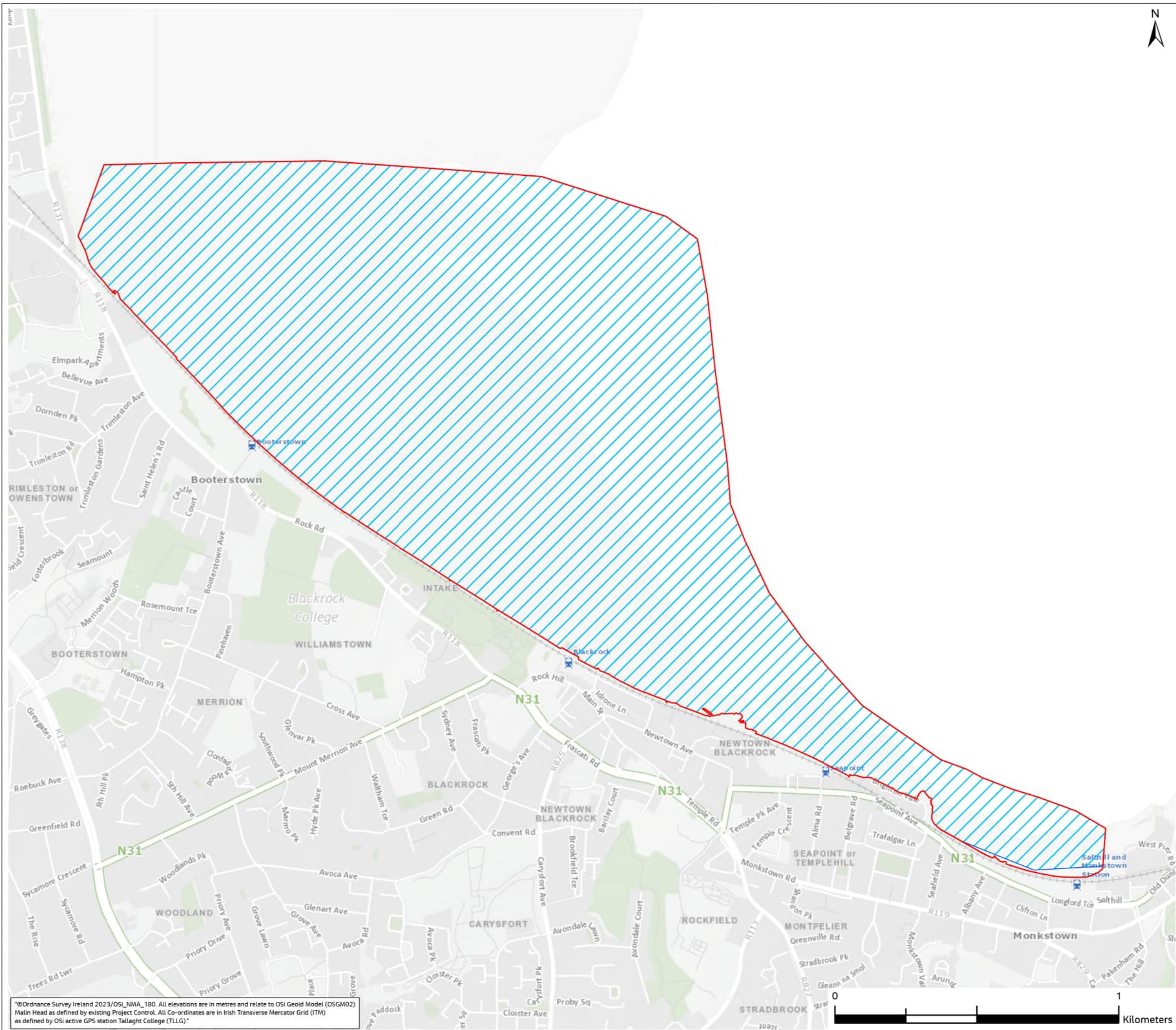
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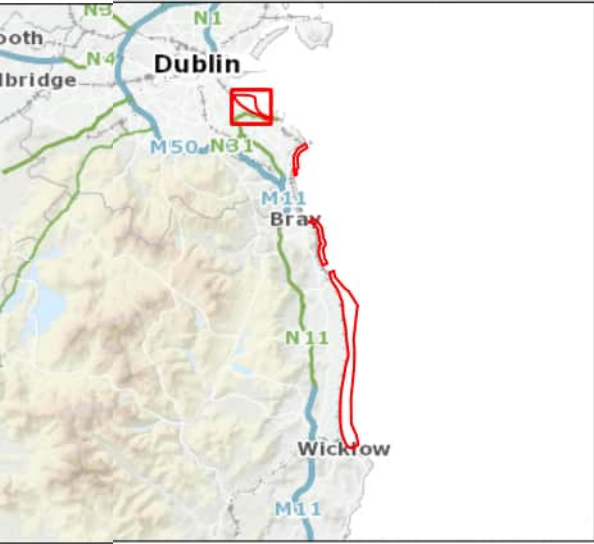
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FIGURE 3

- Legend**
- MARA Licence Area**
- Area A
 - Proposed Offshore Survey AOI



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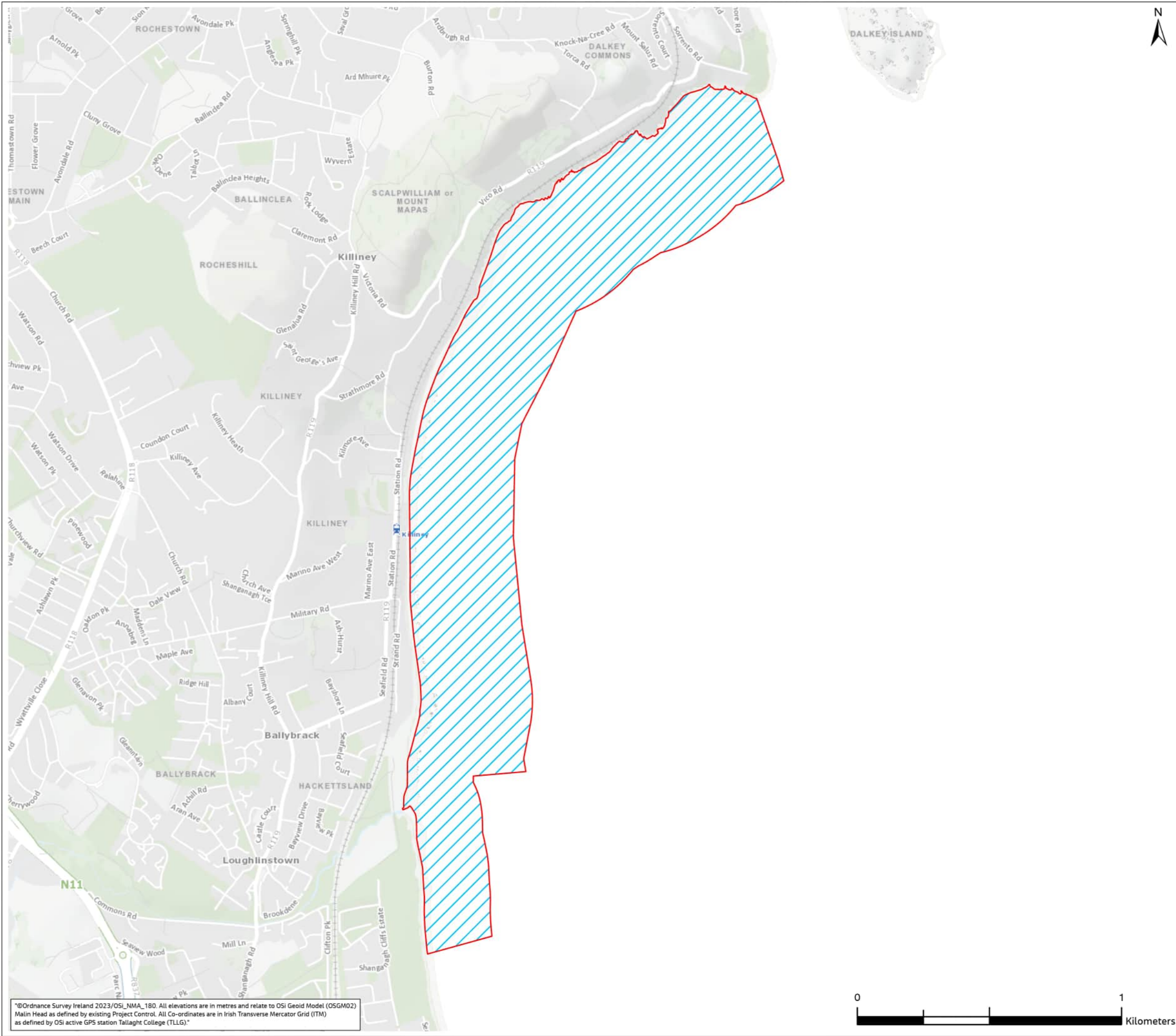
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Site Location Plan with
Proposed Offshore Survey AOI
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FIGURE 3

- Legend**
- MARA Licence Area**
- Area B
 - Proposed Offshore Survey AOI



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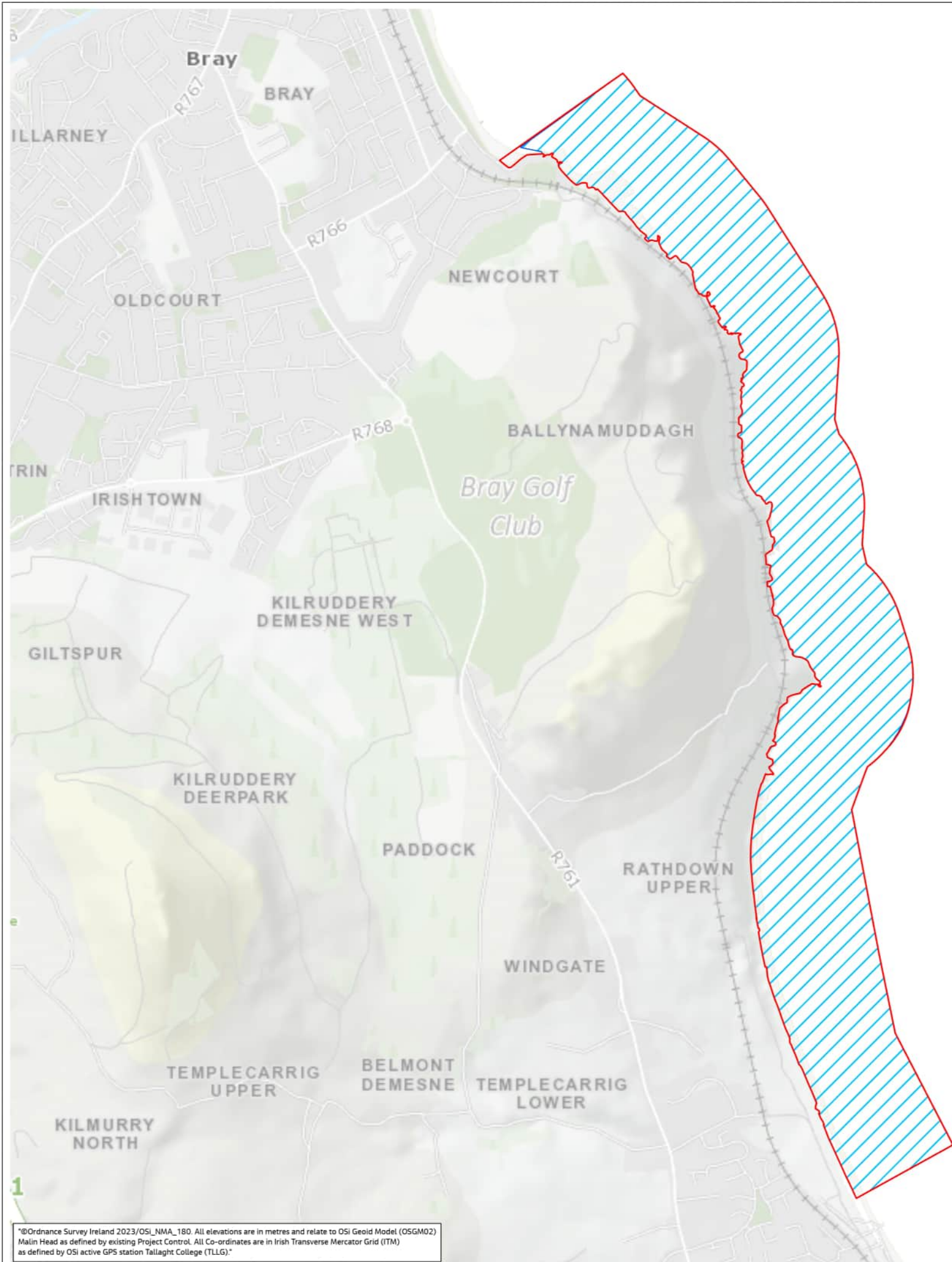
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Site Location Plan with
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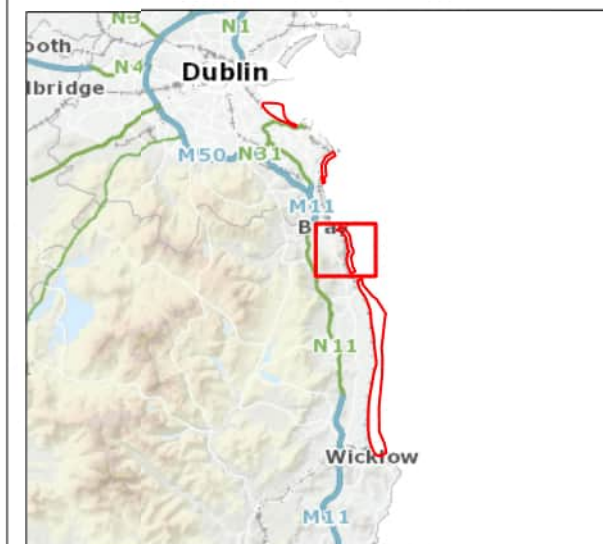


FIGURE 3

Legend

MARA Licence Area

- Area C
- Proposed Offshore Survey AOI



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Site Location Plan with
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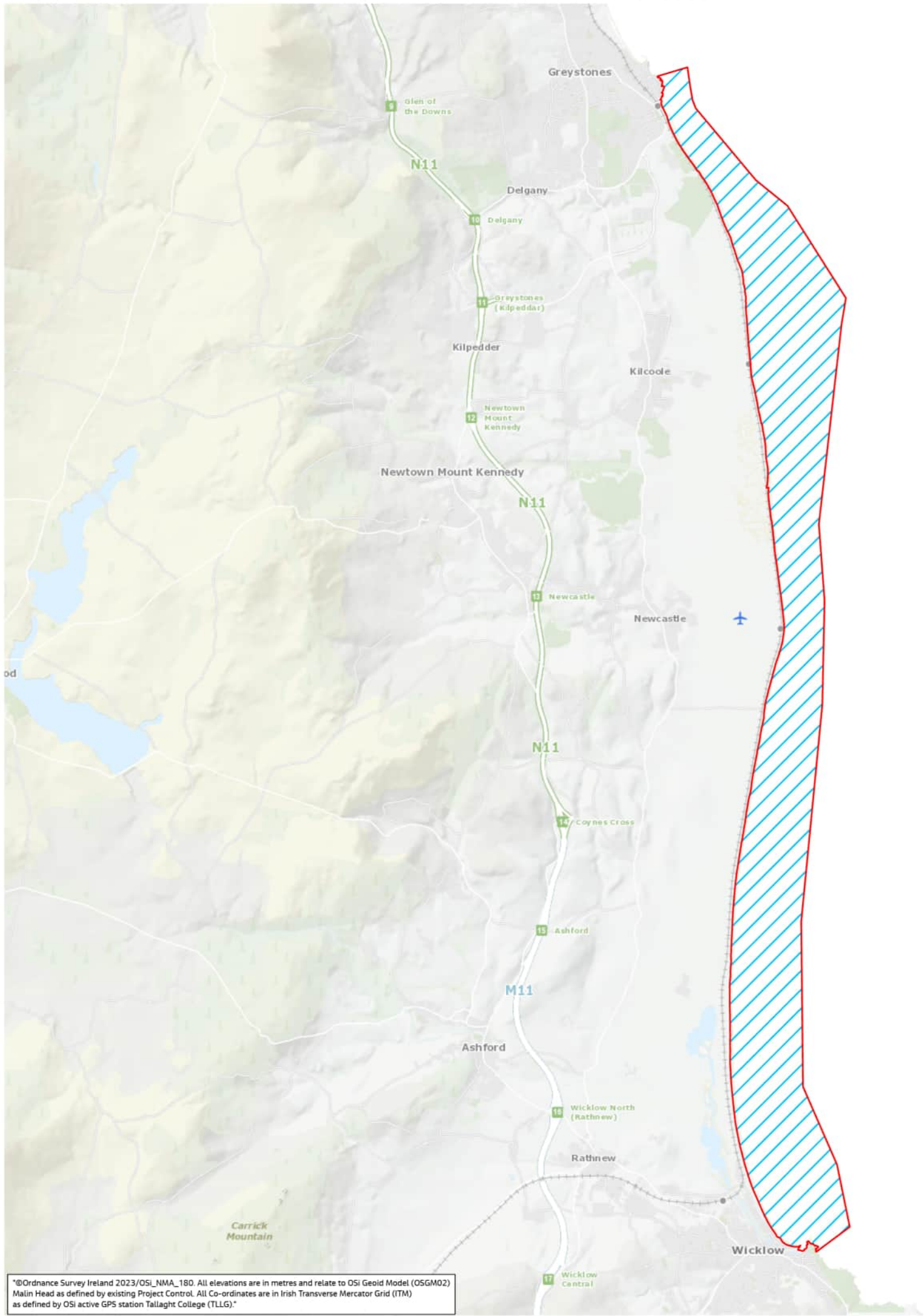
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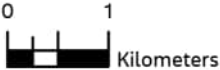
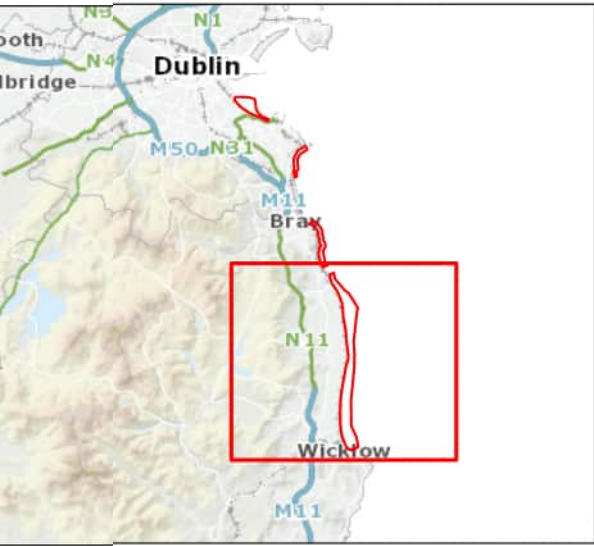


FIGURE 3

- Legend**
- MARA Licence Area**
- Area D
 - Proposed Offshore Survey AOI



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Site Location Plan with
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Appendix B. Bird survey results

Table 1: I-WeBS peak counts of QI species during the 2022/23 winter season. A dash (-) has been used where no data was returned.

Species	Designation	I-WeBS sites	2022/23 Peak Count
Bar-tailed godwit (<i>Limosa lapponica</i>)	<u>EU Birds Directive</u> : Annex I species <u>Protected Species</u> : Wildlife Acts	Dublin Bay (Licence Area A)	612
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Common tern (<i>Sterna hirundo</i>)	<u>EU Birds Directive</u> : Annex I species <u>Protected Species</u> : Wildlife Acts	Dublin Bay (Licence Area A)	6
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Dunlin (<i>Calidris alpina</i>)	<u>EU Birds Directive</u> : Annex I species <u>Protected Species</u> : Wildlife Acts	Dublin Bay (Licence Area A)	1386
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	13
Great northern Diver (<i>Gavia immer</i>)	<u>EU Birds Directive</u> : Annex I species <u>Protected Species</u> : Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	1
		North Wicklow Coastal Marshes (Licence Area D)	1
Little Gull (<i>Larus minutus</i>)	<u>EU Birds Directive</u> : Annex I, Annex II & Annex III species <u>Protected Species</u> : Wildlife	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	3

Species	Designation	I-WeBS sites	2022/23 Peak Count
	Acts	Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Red-throated diver (<i>Gavia stellata</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	116
Eurasian curlew (<i>Numenius arquata</i>)	<u>EU Birds Directive:</u> Annex II species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	33
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	115
Eurasian teal (<i>Anas crecca</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	77
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	72
Eurasian wigeon (<i>Mareca penelope</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	714
Greylag goose (<i>Anser anser</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife	Dublin Bay (Licence Area A)	-
		South Dublin Coastline	-

Species	Designation	I-WeBS sites	2022/23 Peak Count
	Acts	(Licence Area B)	
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	91
Northern shoveler (<i>Spatula clypeata</i>)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	30
Red-breasted merganser (<i>Mergus serrator</i>)	EU Habitats Directive: Annex II species Protected Species: Wildlife Acts	Dublin Bay (Licence Area A)	19
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Protected Species: Wildlife Acts	Dublin Bay (Licence Area A)	627
		South Dublin Coastline (Licence Area B)	16
		Bray Beach and Greystones (Licence Area C)	191
		North Wicklow Coastal Marshes (Licence Area D)	54
Black-legged kittiwake (<i>Rissa tridactyla</i>)	Protected Species: Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Black-tailed godwit (<i>Limosa limosa</i>)	Protected Species: Wildlife Acts	Dublin Bay (Licence Area A)	680

Species	Designation	I-WeBS sites	2022/23 Peak Count
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	14
Brent goose (<i>Branta bernicla</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	312
		South Dublin Coastline (Licence Area B)	12
		Bray Beach and Greystones (Licence Area C)	88
		North Wicklow Coastal Marshes (Licence Area D)	45
Common gull (<i>Larus canus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	53
		South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	5
Common redshank (<i>Tringa totanus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	246
		South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	25
Common scoter (<i>Melanitta nigra</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	2
Common shelduck (<i>Tadorna</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	9

Species	Designation	I-WeBS sites	2022/23 Peak Count
<i>tadorna)</i>	Acts	Area A)	
		South Dublin Coastline (Licence Area B)	4
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	5
Eurasian oystercatcher (<i>Haematopus ostralegus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	676
		South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	110
		North Wicklow Coastal Marshes (Licence Area D)	8
European shag (<i>Gulosus aristotelis</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	7
		Bray Beach and Greystones (Licence Area C)	74
		North Wicklow Coastal Marshes (Licence Area D)	58
Great black-backed gull (<i>Larus marinus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	6
		South Dublin Coastline (Licence Area B)	3
		Bray Beach and Greystones (Licence Area C)	12
		North Wicklow Coastal Marshes (Licence Area D)	7
Great cormorant (<i>Phalacrocorax carbo</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	54
		South Dublin Coastline (Licence Area B)	17
		Bray Beach and Greystones (Licence Area C)	4
		North Wicklow Coastal Marshes (Licence Area D)	55

Species	Designation	I-WeBS sites	2022/23 Peak Count
Grey plover (<i>Pluvialis squatarola</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	8
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	3
Herring gull (<i>Larus argentatus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	89
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	68
		North Wicklow Coastal Marshes (Licence Area D)	73
Lesser black-backed gull (<i>Larus fuscus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	3
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	2
Red knot (<i>Calidris canutus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1250
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Ringed plover (<i>Charadrius hiaticula</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	18
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	11
		North Wicklow Coastal Marshes (Licence Area D)	1

Species	Designation	I-WeBS sites	2022/23 Peak Count
		D)	
Sanderling (<i>Calidris alba</i>)	N/A	Dublin Bay (Licence Area A)	23
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Turnstone (<i>Arenaria interpres</i>)	N/A	Dublin Bay (Licence Area A)	7
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	24
		North Wicklow Coastal Marshes (Licence Area D)	-

Table 2 : Jacobs wintering bird survey peak counts of QI bird species for each Licence Area. A dash (-) has been used where the species was not recorded.

Species	Licence Area	Peak Count	Month of Peak Count
Bar-tailed godwit (<i>Limosa lapponica</i>)	Licence Area A	10000	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	-	-
Dunlin (<i>Calidris alpina</i>)	Licence Area A	30000	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	60	December
Great northern Diver (<i>Gavia immer</i>)	Licence Area A	-	-
	Licence Area B	1	February
	Licence Area C	-	-
	Licence Area D	2	December
Little Gull (<i>Larus minutus</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	3	October
Red-throated diver (<i>Gavia stellata</i>)	Licence Area A	1	November
	Licence Area B	1	February
	Licence Area C	5	November
	Licence Area D	205	January

Species	Licence Area	Peak Count	Month of Peak Count
Eurasian curlew (<i>Numenius arquata</i>)	Licence Area A	99	December
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	140	January
Eurasian teal (<i>Anas crecca</i>)	Licence Area A	115	January
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	235	November
Eurasian wigeon (<i>Mareca penelope</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	2000	January
Greylag goose (<i>Anser anser</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	5	November
	Licence Area D	150	January
Northern shoveler (<i>Spatula clypeata</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	52	January
Red-breasted merganser (<i>Mergus serrator</i>)	Licence Area A	25	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	-	-
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Licence Area A	1000	January
	Licence Area B	60	March
	Licence Area C	236	January
	Licence Area D	500	February
Black-legged kittiwake (<i>Rissa tridactyla</i>)	Licence Area A	-	-
	Licence Area B	1	March
	Licence Area C	-	-
	Licence Area D	1	February
Black-tailed godwit (<i>Limosa limosa</i>)	Licence Area A	1500	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	170	March
Brent goose (<i>Branta bernicla</i>)	Licence Area A	400	February
	Licence Area B	18	March
	Licence Area C	20	December
	Licence Area D	142	February
Common gull (<i>Larus canus</i>)	Licence Area A	100	January

Species	Licence Area	Peak Count	Month of Peak Count
	Licence Area B	1	March
	Licence Area C	42	February
	Licence Area D	20	November
Common redshank (<i>Tringa totanus</i>)	Licence Area A	335	December
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	50	November
Common scoter (<i>Melanitta nigra</i>)	Licence Area A	22	January
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	25	November
Common shelduck (<i>Tadorna tadorna</i>)	Licence Area A	5	February
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	10	November
Eurasian oystercatcher (<i>Haematopus ostralegus</i>)	Licence Area A	1500	February
	Licence Area B	18	February
	Licence Area C	3	December
	Licence Area D	125	December
European shag (<i>Gulosus aristotelis</i>)	Licence Area A	1	November
	Licence Area B	15	February
	Licence Area C	87	February
	Licence Area D	80	January
Great black-backed gull (<i>Larus marinus</i>)	Licence Area A	6	November
	Licence Area B	6	February
	Licence Area C	5	December
	Licence Area D	90	March
Great cormorant (<i>Phalacrocorax carbo</i>)	Licence Area A	10	November
	Licence Area B	6	February
	Licence Area C	110	November
	Licence Area D	36	November
Fulmar (<i>Fulmarus glacialis</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	2	February
	Licence Area D	-	-
Grey plover (<i>Pluvialis squatarola</i>)	Licence Area A	50	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	2	October
Herring gull (<i>Larus argentatus</i>)	Licence Area A	250	November
	Licence Area B	60	February

Species	Licence Area	Peak Count	Month of Peak Count
	Licence Area C	90	November
	Licence Area D	64	March
Golden Plover (<i>Pluvialis apricaria</i>)	Licence Area A	50	October
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	400	March
Lesser black-backed gull (<i>Larus fuscus</i>)	Licence Area A	1	December
	Licence Area B	1	February
	Licence Area C	1	October
	Licence Area D	6	March
Red knot (<i>Calidris canutus</i>)	Licence Area A	20000	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	-	-
Ringed plover (<i>Charadrius hiaticula</i>)	Licence Area A	120	December
	Licence Area B	-	-
	Licence Area C	15	January
	Licence Area D	24	October
Sanderling (<i>Calidris alba</i>)	Licence Area A	80	March
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	1	January
Turnstone (<i>Arenaria interpres</i>)	Licence Area A	25	November
	Licence Area B	-	-
	Licence Area C	4	February
	Licence Area D	9	March
Guillemot (<i>Uria aalge</i>)	Licence Area A	-	-
	Licence Area B	100	February
	Licence Area C	-	-
	Licence Area D	6	March
Razorbill (<i>Alca torda</i>)	Licence Area A	5	March
	Licence Area B	4	March
	Licence Area C	5	March
	Licence Area D	17	October
Merlin (<i>Falco columbarius</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	1	October
Peregrine (<i>Falco peregrinus</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-

Species	Licence Area	Peak Count	Month of Peak Count
	Licence Area D	1	October

Table 3: Jacobs breeding bird survey peak counts of QI bird species for each Licence Area. A dash (-) has been used where the species was not recorded.

Species	Licence Area	Peak Count	Month of Peak Count	Highest Breeding Status
Bar-tailed godwit (<i>Limosa lapponica</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	2	June	Non-breeding
Dunlin (<i>Calidris alpina</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	11	April	Possible
Eurasian teal (<i>Anas crecca</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	4	April	Probable
Northern shoveler (<i>Spatula clypeata</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	7	April	Probable
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	9	June	Probable
Black-legged kittiwake (<i>Rissa tridactyla</i>)	Licence Area B	2	June	Possible
	Licence Area C	40	May	Confirmed
	Licence Area D	-	-	-
Black-tailed godwit (<i>Limosa limosa</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	2	June	Possible
Common redshank (<i>Tringa totanus</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	3	June	Probable
Common shelduck (<i>Tadorna tadorna</i>)	Licence Area B	7	April	Probable
	Licence Area C	-	-	-
	Licence Area D	4	April	Probable
Eurasian oystercatcher (<i>Haematopus ostralegus</i>)	Licence Area B	6	April	Probable
	Licence Area C	-	-	-
	Licence Area D	12	April	Confirmed
European shag (<i>Gulosus aristotelis</i>)	Licence Area B	4	June	Probable
	Licence Area C	75	April	Confirmed
	Licence Area D	11	April	Possible
Great black-backed gull (<i>Larus marinus</i>)	Licence Area B	9	June	Confirmed
	Licence Area C	5	May	Probable
	Licence Area D	4	June	Possible

Species	Licence Area	Peak Count	Month of Peak Count	Highest Breeding Status
Great cormorant (<i>Phalacrocorax carbo</i>)	Licence Area B	17	June	Confirmed
	Licence Area C	120	April	Confirmed
	Licence Area D	1	June	Possible
Fulmar (<i>Fulmarus glacialis</i>)	Licence Area B	1	June	Possible
	Licence Area C	8	June	Confirmed
	Licence Area D	-	-	-
Herring gull (<i>Larus argentatus</i>)	Licence Area B	70	June	Confirmed
	Licence Area C	30	May	Confirmed
	Licence Area D	14	April	Probable
Lesser black-backed gull (<i>Larus fuscus</i>)	Licence Area B	6	April	Probable
	Licence Area C	-	-	-
	Licence Area D	-	-	-
Common tern	Licence Area B	80	June	Probable
	Licence Area C	1	June	Possible
	Licence Area D	-	-	-
Arctic tern	Licence Area B	20	June	Probable
	Licence Area C	-	-	-
	Licence Area D	-	-	-
Little tern	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	600	June	Confirmed
Ringed plover (<i>Charadrius hiaticula</i>)	Licence Area B	-	-	-
	Licence Area C	-	-	-
	Licence Area D	14	May	Confirmed
Guillemot (<i>Uria aalge</i>)	Licence Area B	-	-	-
	Licence Area C	3000	June	Confirmed
	Licence Area D	-	-	-
Razorbill (<i>Alca torda</i>)	Licence Area B	-	-	-
	Licence Area C	100	June	Confirmed
	Licence Area D	-	-	-
Peregrine (<i>Falco peregrinus</i>)	Licence Area B	1	April	Possible
	Licence Area C	-	-	-
	Licence Area D	-	-	-

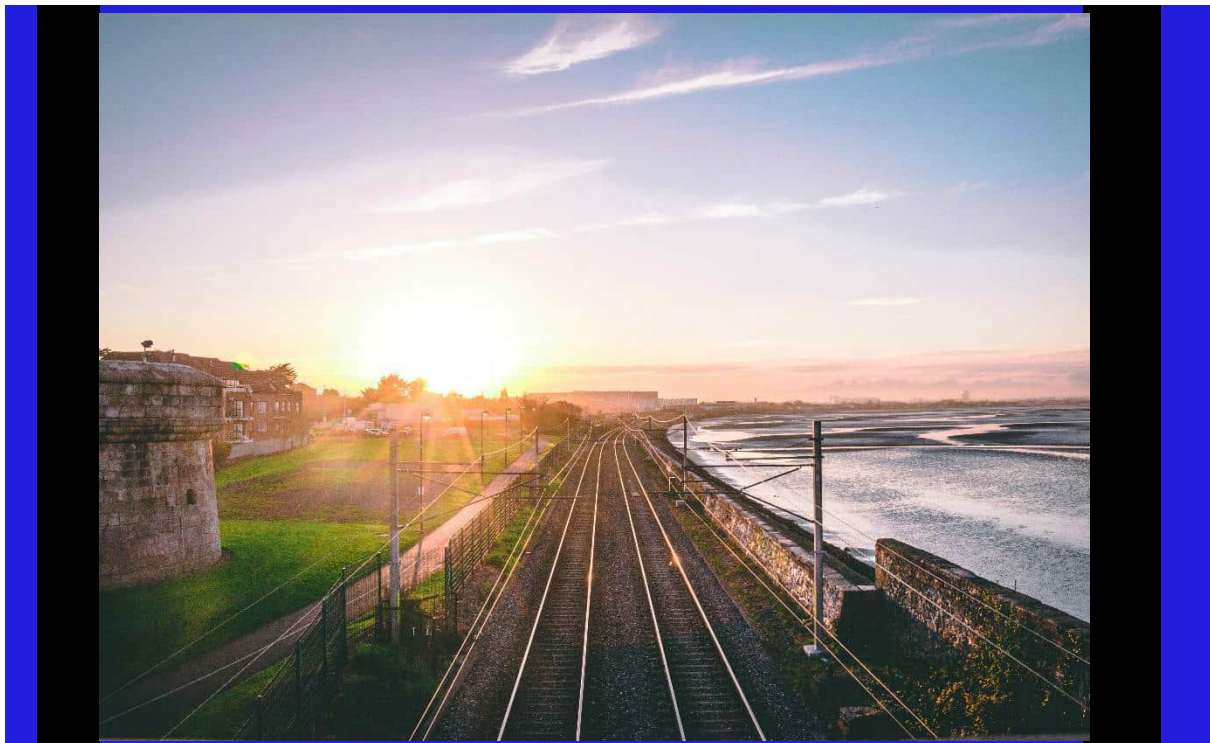
Appendix C. Appropriate Assessment Screening Report

Appropriate Assessment Screening Report: ECRIPP Pre-Works Surveys

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Iarnród Éireann
Iarnrod Eireann

East Coast Railway Infrastructure Protection Project



Appropriate Assessment Screening Report: ECRIPP Pre-Works Surveys

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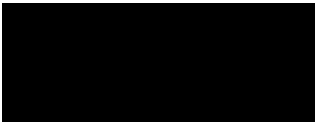
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Executive Summary

Iarnród Éireann's East Coast Railway Infrastructure Protection Projects (ECRIPP) is required to defend long sections of the essential Dublin to Rosslare coastal rail line from coastal erosion and flooding for the next 100 years. The project will be the largest coastal protection scheme in north-western Europe. The South-East railway carries Dublin Area Rapid Transport (DART) and mainline services and runs for 167km to Rosslare. Just under half of the route length (77km) runs adjacent to coastal or estuarine environment making it vulnerable to the impact of climate change. ECRIPP is planned to defend the railway infrastructure and boost coastal resilience in the face of a changing climate with its associated rising sea levels.

A network of protected areas for certain habitats and species of conservation importance has been established by European Union (EU) member states under the Habitats and Birds Directives (Council Directive 92/43/EEC and Directive 2009/147/EC); these areas are known as European sites.

The EU Habitats Directive (92/43/EEC) has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites. Appropriate Assessment of the implications must be made by the decision-making authority (or Competent Authority) if the project is likely to have a significant effect on a European site alone or in-combination with other plans or projects. Appropriate Assessment is a two-stage process of determining impacts to European sites which are Stage 1 Screening and Stage 2 Appropriate Assessment.

This Appropriate Assessment (AA) Screening Report has been undertaken in relation to the pre-works surveys required in support of ECRIPP. These surveys include ground investigation (GI), geophysical surveys, archaeological surveys, bathymetric surveys, benthic ecology surveys and breeding bird and bat survey works (hereafter referred to as the 'Survey Works'). The Survey Works are required to inform the geotechnical and ecological baseline conditions and site conditions in general.

This document summarises the findings of the studies undertaken to inform Stage 1 Appropriate Assessment Screening of the AA process.

The conclusion of the Screening for AA is that, in the absence of mitigation measures, the following LSE to undermine the conservation objectives of the following European sites cannot be excluded:

- South Dublin Bay SAC
 - Mudflats and sandflats not covered by seawater at low tide [1140], annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], embryonic shifting dunes [2110]
 - Habitat loss – temporary from GI and intertidal cores within Licence Area A
- Rockabill to Dalkey Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- Lambay Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351], Grey Seal (*Halichoerus grypus*) [1364], Harbour Seal (*Phoca vitulina*) [1365]
 - Disturbance of species during bathymetric surveys and ecology boat surveys

- Codling Fault Zone SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- South Dublin Bay and River Tolka Estuary SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Oystercatcher (*Haematopus ostralegus*) [A130], Ringed plover (*Charadrius hiaticula*) [A137], Grey plover (*Pluvialis squatarola*) [A141], Knot (*Calidris canutus*) [A143], Sanderling (*Calidris alba*) [A144], Dunlin (*Calidris alpina*) [A149], Bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- The Murrough SPA
 - Red-throated diver (*Gavia stellata*) [A001], Greylag goose (*Anser anser*) [A043], Light-bellied brent goose (*Branta bernicla hrota*) [A046], Wigeon (*Mareca penelope*) [A050], Teal (*Anas crecca*) [A052], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Herring gull (*Larus argentatus*) [A184], Little tern (*Sterna albifrons*) [A195]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Dalkey Islands SPA
 - Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Head SPA
 - Kittiwake (*Rissa tridactyla*) [A188]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North Bull Island SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Teal (*Anas crecca*) [A052], Pintail (*Anas acuta*) [A054], Shoveler (*Spatula clypeata*) [A056], Oystercatcher (*Haematopus ostralegus*) [A130], Golden Plover (*Pluvialis apricaria*) [A140], Grey plover (*Pluvialis squatarola*) [A141], 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], Turnstone (*Arenaria interpres*) [A169], Black-headed gull (*Chroicocephalus ridibundus*) [A179]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North-West Irish Sea SPA
 - Red-throated Diver (*Gavia stellata*) [A001], Great Northern Diver (*Gavia immer*) [A003], Fulmar (*Fulmarus glacialis*) [A009], Manx Shearwater (*Puffinus puffinus*) [A013], Cormorant (*Phalacrocorax carbo*) [A017], Shag (*Gulosus aristotelis*) [A018], Common Scoter (*Melanitta nigra*) [A065], Little Gull (*Larus minutus*) [A177], Black-headed Gull (*Chroicocephalus*

ridibundus) [A179], Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Herring Gull (*Larus argentatus*) [A184], Great Black-backed Gull (*Larus marinus*) [A187], Kittiwake (*Rissa tridactyla*) [A188], Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193], Arctic Tern (*Sterna paradisaea*) [A194], Little Tern (*Sterna albifrons*) [A195], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204]

- Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Mountains SPA
 - Merlin (*Falco columbarius*) [A098], Peregrine (*Falco peregrinus*) [A103]
 - Disturbance of species during all Survey Works within foreshore and intertidal zones

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Acronyms and abbreviations

Term, Abbreviation or Acronym	Description
AA	Appropriate Assessment
ACIEEM	Associate Member of the Chartered Institute of Ecology and Environmental Management
CCA	Coastal Cell Area
CEMP	Construction Environmental Management Plans
CIEEM	Chartered Institute of Ecology and Environmental Management
CO	Conservation Objectives
DoEHLG	Department of Environment, Heritage and Local Government
ECJ	European Court of Justice
EC	European Commission
EPA	Environmental Protection Agency
GI	Geotechnical Investigation
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effects
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
MUL	Maritime Usage Licence
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPAD	National Planning Application Database
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
OPR	Office of the Public Regulator
QI	Qualifying Interest
SAC	Special Areas of Conservation
SCI	Special Conservation Interest
SISAA	Supporting Information for Screening Appropriate Assessment
SPA	Special Protection Areas
WFD	Water Framework Directive
ZoI	Zone of Influence

1. Introduction

1.1 Background

Iarnród Éireann (IÉ) are applying for a Maritime Usage Licence (MUL) to undertake a range of surveys and investigations within intertidal and subtidal areas on Ireland's East Coast. The purpose of the Survey Works is to inform the selection and design of preferred coastal management options (such as breakwaters, beach nourishment, onshore revetment strengthening etc) for the future East Coast Railway Infrastructure Protection Projects (ECRIPP), which will be subject to separate consenting.

The ECRIPP is required to defend long sections of the essential Dublin to Rosslare east coastal railway line from coastal erosion and flooding for the next 100 years. The project will be the largest coastal protection scheme in north-western Europe. The South-East railway carries Dublin Area Rapid Transport (DART) and mainline services and runs for 168km to Rosslare. Just under half of the route length (77km) runs adjacent to coastal or estuarine environment making it vulnerable to the impact of climate change. ECRIPP is planned to defend the railway infrastructure and boost coastal resilience in the face of a changing climate with its associated rising sea levels.

The frequency of track wash out, where the sea has eroded the land supporting the railway, along with wave overtopping onto the tracks, has increased in the last 20 years. These incidents have had significant impacts on performance and safety as well as major losses of land and freshwater/terrestrial habitats.

This Supporting Information for Screening Appropriate Assessment (SISAA) report has been undertaken in relation to the pre-works surveys required in support of ECRIPP, to support the MUL required for the Survey Works. The Survey Works include geotechnical investigations, geophysical site investigation surveys, bathymetric surveys and environmental surveys (comprising archaeological surveys, benthic ecology surveys, boat-based breeding bird and bat survey works).

This document summarises the findings of the studies undertaken to inform Stage 1 Appropriate Assessment Screening of the AA process. Full details and methodologies of the Survey Works are provided in Section 2 'Description of the Survey Works'.

1.1.1 Licence Areas

The future ECRIPP scheme is located along the east coast railway line in Ireland. As part of ECRIPP, five Coastal Cell Areas (CCA's) have been identified as vulnerable to coastal erosion and climate change effects. As part of this assessment of the Survey Works and throughout the MARA licence documentation these will be referenced as "Licence Areas". These Licence Areas as they relate to the CCA's can be seen in Table 1.1, and are shown in Appendix A, Figure 1 and 3.

Table 1.1: Licence Areas

CCA	Description	Licence Area
1	Merrion Gates to Dun Laoghaire	A
2/3	Dalkey Tunnel to Killiney South	B
5	Bray Head to Greystones North Beach	C
6.1	Greystones South to Newcastle	D
6.2	Newcastle to Wicklow	D

For the purpose of this assessment, CCA6.1 and CCA6.2 are combined into one – Licence Area D. It should be noted that no protection measures are proposed as part of ECRIPP in CCA4 and therefore no Survey Works are to be carried out in this CCA and as such this CCA is not included in the assessment.

Licence Map Areas have been developed and accompany this licence application in Appendix A.

1.2 Purpose of this Report

1.2.1 Informing Appropriate Assessment Screening

In the context of Article 6(3) of the Habitats Directive and Section 177U(1) of Planning and Development Act 2000 (as amended), Iarnród Éireann as the Competent Authority for this Proposed Development, must carry out Screening for Appropriate Assessment (AA) of the Proposed Development to assess whether, on the basis of objective scientific information, the Proposed Development, individually or in-combination with other plans or projects, is likely to have a significant effect on the conservation objectives of any European sites. This report presents the information required for the Competent Authority to undertake Screening for AA for the Proposed Development.

1.2.2 Legislative Context to Appropriate Assessment

Habitats and species of European importance are provided legal protection under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (hereafter referred to as the Habitats Directive) and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (hereafter referred to as the Birds Directive). The Habitats Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network (hereafter referred to as European sites, as the term Natura 2000 network was replaced by 'European site' under S.I. No. 473 of 2011 – European Union (Environmental Impact Assessment and Habitats) Regulations 2011). European sites comprise Special Areas of Conservation (SACs) and Special Protection Areas. Candidate SACs (cSACs) and potential SPAs (pSPAs) are afforded the same protection as SACs and SPAs and are therefore assessed in the same manner within this AA Screening Report.

The Habitats Directive has been transposed into Irish law by Number 30 of 2000 - Planning and Development Act, 2000 (as amended) and S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 (hereafter referred to as the Birds and Habitats Regulations). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites.

Article 6(3) establishes the requirement for AA:

'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 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.'

Article 6(4) states:

'If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'

The Habitats Directive was transposed into Irish law from a planning perspective through Part XAB of the Planning and Development Act 2000 (as amended). The circumstances under which an AA is required, the stages of that assessment which must be undertaken and the responsibilities of the Competent Authority in considering whether or not to approve consent for proposed plans or projects are outlined in the Act.

Section 177U(1) states that:

"A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site."

Where likely significant effects upon a European site are predicted, or cannot be ruled out, it is the responsibility of the Competent Authority to undertake an AA under Article 6(3) of the Habitats Directive, informed through an Natura Impact Statement (NIS), to determine whether or not the proposed plan in combination with any other plan or project would adversely affect the integrity of a European site in light of its Conservation Objectives.

Section 177T(1) states that:

"(a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a Land use plan, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

Section 177T(2) states that:

"Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites."

1.2.3 Guiding Principles and Case Law

Appropriate Assessment Screening for Development Management (OPR Practice Note PN01) is the most recent Irish guidance in relation to AA and was published in 2021 by the OPR (OPR 2021). This document provides information and guidance on the Irish planning application.

A number of cases have been brought to both the National and European courts in relation to the AA process. Therefore, relevant case law, European Court of Justice (ECJ) rulings and European Commission publications have also been considered in the preparation of this AA Screening.

1.2.4 Stages of Appropriate Assessment

The purpose of AA Screening is to identify whether, activities associated with plans or projects, either acting individually or in-combination with other plans or projects result in likely significant effects (LSEs) on any European sites. All potential effects between activities associated with the plans or projects and the ecological components of European sites must be considered. This includes potential effects on mobile species, notably birds, mammals, invertebrates and migratory fish using functionally linked land outside the designated boundary of a European site.

If the prospect of LSEs occurring cannot be excluded on the basis of objective information or is uncertain, the plan or project is taken forward to the next stage of the process i.e. AA. At Screening, the burden of evidence is to show, on the basis of objective information, and beyond reasonable scientific doubt, that the proposed plan or project will have no LSEs on a European site. An overview of the Appropriate Assessment process is outlined below:

- **Stage 1 Screening:** Screening determines whether an AA is required by determining if the project or plan is likely to have a significant effect on any European site(s) either individually or in-combination with other plans or projects, in light of the site's conservation objectives.
- **Stage 2 Appropriate Assessment:** If the screening has determined that AA is required, the competent authority then considers the effect of the project or plan on the integrity of the European site(s). Specifically it must be determined if the project or plan will adversely affect the integrity of a European site(s) either individually or in-combination with other plans and projects in view of the conservation objectives of the site(s). Where potential adverse effects on site integrity (AESI) are identified, mitigation measures are proposed to avoid adverse effects, as appropriate. For projects, the AA process is documented within a Natura Impact Statement (NIS).

Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, and the project/plan is progressed, the process moves to the next stage.

Where an Assessment of Alternative Solutions fails to identify any suitable alternatives, for a project or plan to be progressed it must demonstrate that there are Imperative Reasons for Overriding Public Interest (IROPI).

If, following an assessment of IROPI, it is deemed that the project or plan can proceed, compensatory measures must be secured to maintain the coherence of the European site network despite adverse effects to the integrity of the site(s).

1.2.5 Authors Qualifications and Expertise

This report has been prepared by [REDACTED] and [REDACTED] and reviewed by [REDACTED].

[REDACTED] is an Ecologist in Jacobs with 2.5 years' experience in ecological consultancy and 0.5 years' experience in conservation. She holds a first-class honours degree in Zoology from University College Dublin. [REDACTED] is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has authored AA Screening Reports, NISs, Construction Environmental Management Plans (CEMP), and Preliminary Ecological Constraints Reports (PECR). [REDACTED] has carried out multiple field surveys for protected species and habitats on a variety of large and small infrastructure projects.

[REDACTED] is a Senior Ecologist and holds a BSc (Hons) in Conservation Biology and Ecology from Exeter University. He has four years of pure consultancy associated project experience including Preliminary Ecological Appraisals (PEA), Environmental Impact Assessments (EIA), AA Screening Reports and Natura Impact Statements (NIS). [REDACTED] has a strong background in ornithology and is well practiced in a range of survey techniques.

[REDACTED] is a Chartered Environmentalist and Senior Associate Director of Ecology and has over 20 years of experience of supporting infrastructure projects in ecological assessment, specialising in Habitats Regulations Assessment. Before this, he spent 18 years developing land management, team / project management and stakeholder engagement skills in the nature conservation field. [REDACTED]'s experience has been in the voluntary, public and private sectors and has included infrastructure projects including new nuclear build, trunk roads, pipelines, electricity transmission and waste management facilities, as well as development of decision-making processes and strategic assessments in the government sector.

2. Description of the Survey Works

Full methodologies for all Survey Works and their locations are described below and summarised in Table 2.1.

Table 2.1: Summary of works to be undertaken in each Licence Area

Licence Area	Works to be undertaken	
	Foreshore and intertidal zone (land-based)	Intertidal and subtidal zone (boat-based)
A	Geotechnical investigations, geophysical investigations, bathymetric surveys, benthic ecology surveys (intertidal cores and transects), licenced metal detection surveys	Bathymetric surveys
B	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects and subtidal day grabs)	Bathymetric surveys
C	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects and subtidal day grabs)	Bathymetric surveys, breeding bird surveys, drop down camera surveys, bat surveys, subtidal day grabs
D	Licenced metal detection surveys, bathymetric surveys, benthic ecology surveys (intertidal transects)	Bathymetric surveys, subtidal day grabs

2.1 Geotechnical and Geophysical Investigations

GI works will be carried out along the upper shore of Licence Area A (Appendix A, Figure 2), as follows:

- 22 borehole surveys (4 no. windows samples and 18 no. windowless samples);
- 19 Trial pits (one hand dug pit and 18 machine excavated pits ("slit trenches"));
- One Dynamic Cone Penetrometer (DCP) test;
- One sediment sample for particle size analysis of beach material; and
- Geophysical surveys comprising two techniques Seismic Refraction Tomography (SRT) and Multichannel Analysis of Surface Waves (MASW).

Access to GI locations will be via public access routes to South Dublin Bay and along the beach thereafter. Specifically, for Licence Area A this will be via Merrion Gates (northern section) and Dun Laoghaire West Pier. The proposed access route for the drilling rig and excavator onto the beach will be via the R131 adjacent to Merrion Strand to the north-west of Blackrock Station (see plans in Annex A). The proposed route towards Booterstown and Blackrock Stations will be along the northern section of the spit formation, along the flat sandy area of the beach. The intertidal area is considered suitable and should be capable of supporting a 3T Excavator or Terrier Rig. There will be one channel crossing necessary, but it is narrow and shallow in nature. Any rigs travelling along the beach will stay as close to the coastal embankment wall as possible (where the ground is less saturated and therefore will provide more support for travelling rigs).

Works areas will be reinstated to their original state as directed by an on-site Ecological Clerk of Works (ECoW), which will typically involve reinstatement of backfill material.

A temporary mobile portacabin will be provided for the duration of the works in a self-contained facility, which will be parked on roads in public areas outside of any SAC / SPA boundary.

2.1.1 Window Sample Boreholes

2.1.1.1 Windowless Sampler

The percussive window or windowless sampling method involves driving cylindrical steel tubes into the ground using a hydraulic hammer (Figure 2.1). The resulting samples will have a maximum surface diameter of 100mm and a maximum depth of 8m. The drilling rig will be mounted onto rubber tracks to minimise disturbance and ensure the method is suitable for use on environmentally sensitive sites. Each windowless sample will take between 1 to 4 hours to complete depending on ground conditions. The backfilling of locations on the beach will be made using the extracted soil horizons. Any additional backfill material required will comprise bentonite pellets.



Figure 2.1. Windowless sampler example

2.1.1.2 Window Sampler

A further four window samples will be drilled on the slope of the existing revetment. This method is similar to the windowless samples described above, with one initial additional step due to the need to core through the hard strata before commencing with the windowless sample technique. The initial upper layers in the revetment will be cored using the coring application on the drill rig. This core-drilling is designed to produce cores up to 150mm diameter from asphalt, concrete and similar materials. The backfilling of locations on the revetment face will be used via a combination of bentonite pellets, and bentonite grout cement. The cored coping stone will then be placed back into the hole and grouted in place.

2.1.2 Trial Pits

2.1.2.1 Hand-dug Trial Pit

A single foundation inspection pit will be excavated using hand digging tools up to 1m long by 1m in width and excavated to a maximum depth of 2m below ground level. The pit will take approximately 30 minutes to complete, and the contractors will backfill the pit on the same day. This pit will be dug by hand due to access restrictions for an excavator.

2.1.2.2 Slit Trench Works

A slit trench is a long narrow trench commonly used to determine the position of existing services (Figure 2.2). Eighteen trenches will be excavated up to 4m long by up to 1m in width and to a maximum depth of 2m below

ground level using a tracked excavator or a wheeler back-hoe excavator. This method typically takes 1-2 hours to complete depending on ground conditions. These trial pits will be backfilled with the beach sediment or soil arisings as appropriate by the contractors on the same day. Generally, the material will be backfilled in the order it was excavated so as to reinstate the different horizons/ layers to their prior locations. In order to achieve this, during excavation any soil risings/spoil will be placed adjacent to the pit on a tarpaulin or similar material.

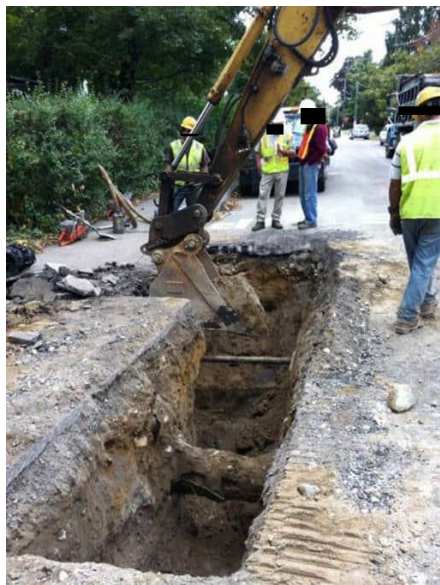


Figure 2.2. Slit trench example

2.1.3 Dynamic Cone Penetrometer test

A single Dynamic Cone Penetrometer (DCP) will be undertaken. The DCP test involves driving a steel cone vertically into the ground using a sliding hammer and will take approximately 5-10 minutes to carry out. The number of blows required for each 100mm of penetration will be measured and used to determine the strength and thickness of unbound pavement layers. The resulting depth profile is useful for identifying anomalously weak layers.

2.1.4 Sediment Sampling

Sediment sampling will be undertaken with the use of hand excavation tools. A bag of sediment will be collected for subsequent particle size analysis with one sample taken from the mean high water spring, mean sea level and mean low water spring. This will be taken at a maximum depth of 0.5m and typically takes under an hour to complete.

2.2 Geophysical Surveys

These surveys comprising Seismic Refraction Tomography (SRT) and Multichannel Analysis of Surface Waves (MASW) will be undertaken at two locations within Licence Area A, as shown in Appendix A.

2.2.1 Seismic Refraction Tomography

The SRT technique is based on the refraction of seismic energy at the interfaces of geological layers of different velocity (Figure 2.3). A geophysics technician will use a drop weight such as a hammer to transmit a series of

signals into the ground¹. These geophysical signals will be detected by a series of receivers which will be laid out along a transect line at a set distance, with each receiver connected to a control box. These receivers comprise of geophones with 100mm metal spikes that are inserted into the ground. The signals received by these receivers helps determine velocity of these input signals and infer the depth of underlying objects/interface between layers.

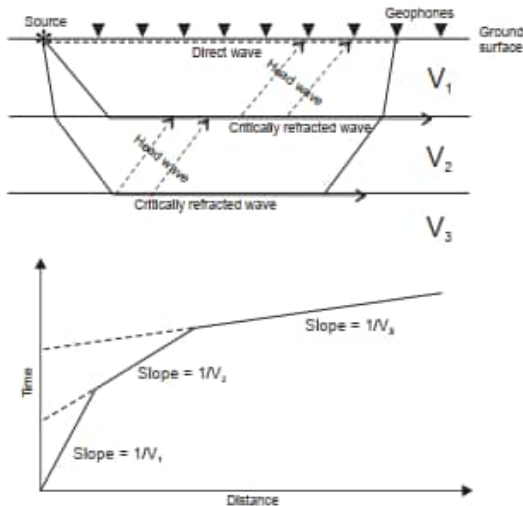


Figure 2.3. SRT Set-Up

2.2.2 Multichannel Analysis of Surface Waves

The MASW technique generates surface waves, which allow the measurement of the variation in soil stiffness with depth (Figure 2.4). A geophysics technician will use a drop weight such as a hammer to transmit a series of signals into the ground. These geophysical signals will be detected by a series of receivers which will be laid out along a transect line at a set distance, with each receiver connected to a control box. These receivers comprise of geophones with 100mm metal spikes that are inserted into the ground. The signals received are used to determine the velocity of surface waves generated. A stiffness profile can be generated and ground properties determined at different depths. A transect line can be numbered at 0.5m, or 1m intervals, all the way along its length. This line will be laid across the study area. This method allows for 15m-70m length of geophysical transect per hour.

¹ Typical noise levels for a hammer onto solid item are around 120dBA.

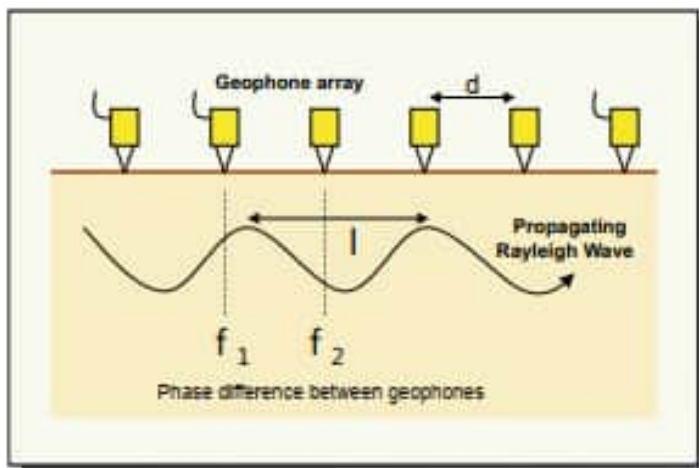


Figure 2.4. MASW Set-Up

2.3 Marine Archaeology Surveys

2.3.1 Licenced Metal Detection Surveys

These will involve a two person intertidal (foreshore) walkover survey using a metal detector, as and where appropriate in the footprint of future ECRIPP works and areas affected by the proposed GI.

2.3.2 Other Archaeological Considerations

Archaeological considerations will be integrated with the planning and execution of the proposed geotechnical and geophysical site investigations (see Sections 2.1 and 2.2) and the resultant data will be assessed for archaeological purposes, as appropriate. Any additional survey requirements agreed in consultation with the Underwater Unit of the National Monuments Service.

2.4 Bathymetric Surveys

The bathymetric and sub-bottom profiling (SBP) surveys are proposed to be carried out within the areas identified. The survey works will require mobilisation of survey vessel(s) with survey equipment on board.

The survey team shall mobilise the survey equipment and carry out all necessary calibrations and verifications of the survey set. Following satisfactory completion of the calibrations and verifications, survey lines shall commence along the planned line plans for the vessel(s).

A qualified and experienced marine mammal observer (MMO) will be appointed to monitor for marine mammals on each survey vessel, to log all relevant events using standardised data forms.

2.4.1 Offshore Bathymetric Surveys

The bathymetric survey will be undertaken with the following parameters:

- A nominal planned main line spacing of 20m in water depths below -6m OD.
- A nominal planned main line spacing of 40m in water depths between -6m OD and -10m OD.
- A cross line spacing of 250m, perpendicular to main lines.

In practice, in extreme shallows, lines will be spaced closer than 20m, and around water depths of between 4 - 6m, line spacing may be greater than 20m. Therefore a line spacing of 20m has been assumed to be a mean

line spacing in this region. Line spacing shall be modified in real time whilst on site in order to ensure 100% coverage in the most efficient manner, whilst achieving the project specifications.

Bathymetric survey coverage will be continually assessed and line planning will be adjusted in real time in order to ensure 100% coverage. In order to ensure maximum bathymetric coverage as close as possible up towards mean high water, shoreline survey lines will be carried out during periods of high water. This line will progress simultaneously while collecting bathymetric coverage.

2.4.2 Sub-bottom Profiling Surveys

For the SBP, it is proposed to carry out a single SBP line, in each of the six areas of Multi-Beam Echo Sounder data capture at 300 ±50m offshore of mean high water. In general, shallow-water MBESs operate at a frequency between 100 and 700kHz. A single line of sub-bottom profiler data shall be conducted, around 300m +/-50m from mean high water. These lines have been planned to have the following lengths:

- Licence Area A; SBP Line – 6.4km length
- Licence Area B; SBP Line – 4.1km length
- Licence Area C; SBP Line – 5.5km length
- Licence Area D; SBP Line – 9.1km length
- Licence Area D; SBP Line – 10.4km length

2.5 Ecology Surveys

2.5.1 Breeding Birds – Boat Counts

The sea cliffs in Licence Area C between Bray and Greystones have a high ecological value for coastal birds and their prey. These cliffs are a key breeding site for coastal bird species including herring gull (*Larus argentatus*), common gull (*Larus canus*), black-headed gull (*Chroicocephalus ridibundus*), greater black-backed gull (*Larus marinus*), lesser black-backed gull (*Larus fuscus*), kittiwake (*Rissa tridactyla*), fulmar (*Fulmarus glacialis*), guillemot (*Uria aalge*), black guillemot (*Cepphus grylle*), razorbill (*Alca torda*), shag (*Gulosus aristotelis*) and cormorant (*Phalacrocorax carbo*). Additionally, the coastal waters at the base of the cliffs are a key foraging site for these bird species and additional species which breed in the vicinity which may include arctic tern (*Sterna paradisaea*), common tern (*Sterna hirundo*), little tern (*Sterna albifrons*) and roseate tern (*Sterna dougallii*).

When determining the breeding activity on the cliff face, it is required that at least three surveys are completed between the months of April and August, however the ideal period is between May and June. The survey will be conducted in daylight hours between 07:00 and 18:00. The entire length of the cliff face from grid reference: O 27668 17934 to grid reference O 28717 15209 shall be surveyed which is approximately 3.3km long.

The boat will be driven 100-200m from the cliff face, with surveyors keeping an eye for bird disturbance as this will not allow for an accurate assessment of breeding activity. If the boat is causing disturbance, surveys will move out to a maximum of 400m.

Surveyors will stop approximately every 300m and will spend up to one hour surveying the stretch of cliff face at each point. These distances may be adjusted on site if the aspect of the cliff face blocks the field of view for surveyors. Surveyors will first survey for breeding activity on the cliff face, looking for nesting sites and resting birds. If time allows then a count of birds foraging in the waters at the base of the cliff will be conducted.

Species, breeding activity and number of birds will be drawn onto the printed maps/ iPad mapping app. The entire length of the cliff face will be photographed using a high-quality camera.

It is preferred that surveyors do in situ counts of breeding bird activity. Photographs taken on the day may only be used for counts if the surveyors first check for the accuracy of the photography. However, this method is not

recommended as accuracy tends to be low. This can be done by taking a sample count of 200 birds then photographing the area immediately and repeating this five times. Subsequently, at the desk the photographs can be analysed for accuracy and all other photographs can be used for completing counts with this error reported alongside the count data.

2.5.2 Drop Down Camera Work

During one of the boat survey trips, the drop-down camera work will be conducted. These surveys will be conducted on a day with calm weather conditions to reduce turbidity in the water and allow for maximum camera clarity. A waterproof camera will be lowered to just above the sea floor and images gathered to check for the presence or absence of sandy substrate. The camera will be dropped and will be above the substrate travelling along the entire length of Licence Area C as close to the cliff face as is safe following the boat crew's advice. The camera work will be conducted after the breeding bird surveys are complete to prevent any potential disturbance from effecting those surveys. Footage will be assessed during a desk-based assessment.

2.5.3 Bat Roosting Assessment

During one of the boat survey trips a bat roosting assessment will be undertaken to examine the cliffs for caves and cracks above the sea level and assess these areas for bat roost potential. Upon completion of the breeding bird surveys on the return trip the bat roosting assessment will take place. The boat will drive at a pace guided by ecologists so that all features can be recorded and photographed. Ecologists will instruct the boat crew to stop if required. Potential roosts will be mapped on the iPad and photographs will be taken.

2.5.4 Benthic Ecology Surveys

2.5.4.1 Intertidal Cores

In Licence Area A and B, six replicates will be taken at 15 intertidal core sites, with 75 replicates in total for infaunal analysis and 15 replicates for sediment particle size and chemistry. Each intertidal core will cover an area of approximately 0.01m², and the core will be taken to a depth of 20cm, sieved and infaunal preserved for laboratory identification. The cores are proposed to be undertaken in September to replicate the overwintering bird period.

2.5.4.2 Intertidal Transects

Intertidal transects are proposed from the high water mark to the low water mark with quadrats undertaken to allow for accurate biotope mapping to be established. Between two and four transects are proposed per 1km of frontage, with up to eight transects completed in one day per team. Where intertidal areas are homogenous then a lower number of transects may be required (>500m apart). In Licence Area A, up to ten intertidal transects are proposed, up to 13 in Licence area B, up to three in Licence Area D and up to 88 intertidal transects in Licence Area D.

2.5.4.3 Subtidal Day Grabs

In Licence Area C, up to six 0.1m subtidal day grabs (or equivalent) are proposed to allow the collection of benthic fauna and to allow habitat categorisation, with three replicates for each sample (and up to 18 replicates in total). In Licence Area D, up to three 0.1m subtidal day grabs (or equivalent) are proposed (up to nine replicates in total). The subtidal day grabs would be undertaken by hand between May and August.

3. Methodology

3.1 Guideline Information

3.2 Guidance Documents

This Screening for AA was undertaken taking cognisance of the following guidance:

- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01;
- Appropriate Assessment of Plans and Proposed Schemes in Ireland. Guidance for Planning Authorities (Department of Environment, Heritage and Local Government (DoEHLG) 2010);
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC 2021a);
- Communication from the Commission on the Precautionary Principle (EC 2000);
- 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 Commission (EC 2007);
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018); and
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021b).

3.3 Screening Methodology

The steps required for screening include the following:

- Determination of whether a project or plan is directly connected with or necessary to the conservation management of any European sites (the Proposed Development is not directly connected with or necessary to the conservation management of any European sites);
- Description of the details of the project/ plan (including the site characteristics/ plan area);
- Description of the characteristics of European sites that might be affected i.e. identification of qualifying interests (QI) and conservation objectives (CO) that could be affected by the project/ plan;
- Assessment of LSEs on relevant European sites in view of the sites' CO, either individually or in-combination with other plans and projects; and
- A screening assessment to determine if the project/ plan individually or in-combination with other plans and projects could undermine the CO of the site(s) and give rise to LSEs. The assessment of LSEs must be undertaken in the absence of mitigation measures.

3.4 Potential Pathways Used in the Assessment

When assessing the Survey Works, the 'source-pathway-receptor' model is applied taking consideration of all potential impact pathways connecting elements of the Survey Works to European sites in view of their conservation objectives.

The source-pathway-receptor conceptual model is a standard tool in environmental assessment to identify and assess potential impact pathways. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the pathway means that there is no likelihood for the effect to occur (e.g. no potential for LSEs). Potential impact pathways assessed are:

- Habitat loss including supporting habitat² and functionally linked habitat³ – permanent
- Habitat loss including supporting habitat and functionally linked habitat – temporary
- Habitat degradation – changes in water quality
- Habitat degradation – changes in air quality
- Habitat degradation – hydrological changes
- Habitat degradation – hydrogeological changes
- Habitat degradation – spread of invasive species
- Disturbance of species
- Mortality

The source-pathway-receptor model is focused solely on the QIs for which European sites are designated as per the latest conservation objectives from the National Parks and Wildlife Service (NPWS) website⁴.

The ZOI is the area over which effects could occur to ecological features from a project. The determination of a ZOI for a project should be identified on a case-by-case basis as there may be an effect on European sites that are at a distance from the works. For example, such an effect may arise where there is a hydrological link between the development site and a European site.

Key considerations in determining the potential ZOI for the Survey Works included:

- Ecological features within and in proximity to the Survey Works;
- Migratory / mobile species of the area;
- Construction activities that may cause a LSE; and
- Linkages to European sites or sensitive habitats connected to those sites.

The source-pathway-receptor model is focused solely on the QIs for which European sites are designated as per the latest conservation objectives from the NPWS website⁵.

Table 3.1 defines the source / pathway / receptor model, the zones of influence and the extents of sensitivity of QIs for each potential impact pathway used in the assessment.

² Supporting habitat is habitat within a protected site (SPA, SAC or NHA) which supports a QI species which is designated by a separate protected site (SPA, SAC or NHA).

³ Functionally linked habitat is habitat within unprotected land which supports QI species designated by a protected site (SPA, SAC or NHA) in the vicinity of said land.

⁴ <https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives>.

⁵ <https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives>.

Table 3.1: Potential effect pathways

Pathway name	Source / pathway / receptors model	Zone of Influence	Extent of sensitivity of receptors
Habitat loss - permanent	<ul style="list-style-type: none"> The provision of new infrastructure or permanent change of habitat from a project could result in direct loss of QI habitat or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites 	<ul style="list-style-type: none"> The Zol assessed is within the footprint of the Survey Works Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat loss - temporary	<ul style="list-style-type: none"> Activities including temporary works areas and access routes of a project could result in the temporary loss of habitats , potentially affecting QI habitat or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites 	<ul style="list-style-type: none"> The Zol assessed is within the footprint of the Survey Works Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive within suitable habitat that is within the range of the QI species from their designated site
Habitat degradation – changes in water quality	<ul style="list-style-type: none"> Survey Works, works traffic, including sea vessels and changes in drainage can release oils, chemicals, heavy metals, silt etc. This can directly affect QI species or habitats or affect them indirectly through loss of aquatic prey species, or through changes in their habitats 	<ul style="list-style-type: none"> The Zol assessed is within the footprint of the Survey Works or within hydrologically linked areas (to the point where effects would be imperceptible such as within the open sea). 1 km has been considered as the Zol for changes in water quality given the coastal and small-scale nature of the Survey Works. 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – changes in land quality	<ul style="list-style-type: none"> Land quality can be impacted by oil, chemicals, etc during Survey Works. Land quality can also be affected by sedimentation or silt through run-off during Survey Works and compaction through use by heavy plant Importing new material into a site has the potential to impact land quality through nourishment and pH changes 	<ul style="list-style-type: none"> The Zol assessed is within the footprint of the Survey Works. Changes in land quality could directly affect QI species or habitats or affect QI species indirectly through loss of prey species, or through changes in their habitat. 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site

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Pathway name	Source / pathway / receptors model	Zone of Influence	Extent of sensitivity of receptors
Habitat degradation – changes in air quality	<ul style="list-style-type: none"> Plant and vehicles emit exhausts containing pollutants that can deposit on QI habitats, which can cause direct toxic effects on QI species and habitats or degradation of QI habitat 	<ul style="list-style-type: none"> The Zol assessed is within 200m of the footprint of the project. Pollutant deposition from vehicles is thought to occur in insignificant amounts beyond 200m from the source. The levels of emissions created during the Survey Works will be inconsequential and therefore there will be no pathways to any effects. 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – hydrological changes	<ul style="list-style-type: none"> In-stream structures or changes to drainage from a project can cause changes in hydrology, which can alter water volumes and flows, which can in turn change the wetness of habitats or cause erosion or deposition of materials. Such changes can affect QI habitats or supporting and functionally linked habitats of QI species 	<ul style="list-style-type: none"> The Zol assessed is within surface water catchments that the footprint of the project lie within. Surface water changes can occur within catchments as changes in one location affect other locations via watercourses for example. Given the location of the Survey Works within the intertidal zone changes in hydrology will be inconsequential and therefore there will be no pathway to an effect. 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – hydrogeological changes	<ul style="list-style-type: none"> Activities such as groundworks, excavations and drainage and permanent changes to drainage and abstraction can cause changes to groundwater volumes and flows, which can change the hydrogeology of QI habitats and supporting or functionally linked habitats of QI species 	<ul style="list-style-type: none"> The Zol assessed is within groundwater catchments that the footprint of the project lie within. Groundwater changes can occur within catchments as changes in one location affect other locations 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – spread of invasive species	<ul style="list-style-type: none"> Activities can cause the spread of invasive species already within a site (through transfer on plant or within materials moved during earthworks), or by importing materials from outside a site (on sea vessels, on the wheels of plant or delivery vehicles, etc). This can cause the degradation of QI habitats or supporting and functionally linked habitats of QI species 	<ul style="list-style-type: none"> The Zol assessed is within the permanent and temporary footprint of the Survey Works. The spread or importing of invasive species can only occur within the boundaries of the Survey Works. 	<ul style="list-style-type: none"> QI habitats are sensitive within the boundary of their designated site Supporting habitats of QI species are sensitive within the boundary of their designated site Functionally linked habitats of QI species are sensitive where suitable habitat is present within

Appropriate Assessment Screening Report: ECRIPP Pre-Works Surveys

Pathway name	Source / pathway / receptors model	Zone of Influence	Extent of sensitivity of receptors
			the range of the QI species from their designated site
Disturbance of species	<ul style="list-style-type: none"> Survey Works could result in disturbance of QI species through changes in noise, vibration, movement (of people and/or vehicles) and lighting. Disturbance may lead to the abandonment of breeding, foraging or resting sites by QI species, potentially resulting in increased energy expenditure, reduced fitness and inability to complete lifecycle stages 	<ul style="list-style-type: none"> The Zol assessed depends on the species being assessed. 300m is considered to be an appropriate distance to assess disturbance of QI bird species as they are unlikely to be significantly disturbed beyond this distance. 500m is considered to be the distance at which marine mammals are disturbed by load works, such as piling, due to their heightened senses underwater. 	<ul style="list-style-type: none"> QI species are sensitive within the boundary of their designated site (in supporting habitat) or within functionally linked habitats where suitable habitat is present within the range of the QI species from their designated site
Mortality	<ul style="list-style-type: none"> Mortality of individuals of QI species could occur directly through killing of individuals by Survey Works or indirectly through death of individuals on roads because their existing commuting routes have been severed or as a result of pollution entering a watercourse and reducing prey count. 	<ul style="list-style-type: none"> The Zol assessed is within the footprint of the Survey Works, within linked watercourses and along any transport routes including boats. Direct mortality from activities can only occur within the Survey Works footprint. Indirect mortality can occur within watercourses via pollution events or within habitats that sever species commuting routes. 	<ul style="list-style-type: none"> QI species are sensitive within the boundary of their designated site (in supporting habitat) or within functionally linked habitats where suitable habitat is present within the range of the QI species from their designated site

3.5 Desk Review

The following resources were analysed to inform the baseline description of the licence areas and surrounding environment:

- Aerial imagery (Google Earth; ESRI 2023) (accessed December 2023);
- Environmental Protection Agency (EPA) rivers and water quality data, Water Framework Directive (WFD) status (accessed December 2023) (EPA 2023);
- National Parks and Wildlife Service (NPWS) Mapping of European site boundaries (accessed December 2023) (NPWS 2023a and b);
- Projects from the NPAD (accessed April 2024) (DoEHLG 2023);
- The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview (NPWS 2019a);
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments (NPWS 2019b);
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments (NPWS 2019c);
- Online data available on Natura 2000 sites as held by the NPWS, including the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data (accessed December 2023); and
- Protected and invasive species data from the NBDC database (NBDC ND) fig.

3.6 Site Visit

Ecological site walkover surveys were undertaken in 2023 and relevant information used to inform this AA Screening Report. Site visits included an assessment for mammal activity (otter (*Lutra lutra*), badger (*Meles meles*, American mink (*Mustela vison*) etc.), invasive species survey and a Fossitt (2000) habitat assessment to determine on-site conditions and to map all features. An additional survey was conducted to record any Annex I habitats and a condition assessment as detailed in Irish Vegetation Classification (Perrin, 2019). These surveys were conducted by experienced botanists within Licence Area A only.

Jacobs' ecologists completed monthly wintering bird surveys between October 2022 and March 2023. Further wintering bird surveys are scheduled to be completed between October 2024 and March 2025. The surveys recorded the abundance and distribution of bird species during low and high tide to identify roosting and foraging populations. Particular attention was paid to those species which are qualifying interest species for SPAs.

Jacobs' ecologists completed breeding bird surveys from land between April and June 2023. The surveys focused on the abundance and distribution of breeding wildfowl and seabirds.

4. Baseline Characterisation

The results of the desk-based review and site visits are presented in the following sections. Habitat descriptions below are in the past tense, to reflect their accuracy at a point in the recent past.

4.1 Overview of the Baseline Environment

4.1.1 Habitats (including Annex I)

A desk-based review of the NPWS datasets for Annex I habitats was conducted on the 2 February 2023 which found a number of protected habitats within the Licence Areas. Habitats include mudflats and sandflats not covered by seawater at low tide, annual vegetation of drift lines, *Salicornia* and other annuals colonising mud and sand, embryonic shifting dunes, European dry heaths, reefs, vegetated sea cliffs of the Atlantic and Baltic coasts, perennial vegetation of stony banks, Atlantic salt meadows, Mediterranean salt meadows, calcareous fens and alkaline fens.

Walkover surveys were completed March to August 2023. These surveys mapped the habitats within the licence areas as well as invasive or protected flora and fauna.

4.1.2 Species (Including Annex I Birds and Annex II Species)

A desk-based review of the NBDC on the 2 February 2023 found a number of records from the last 20 years of protected bird species within 1km of the Survey Works. Records for all designated qualifying interest bird species (QIs) were returned. A 1km buffer was chosen to capture all flora and fauna species which occur or frequently use habitats under the footprint of the Survey Works. A 1km buffer reflects the typical species array for both mobile and sessile species in the vicinity of the Survey Works. Results are included at Appendix C.

Records from Irish Wetland Bird Surveys (I-WeBS) were received from BirdWatch Ireland. I-WeBS collects data on wintering wildfowl and waders each year at a number of sites across Ireland. Each licence area has a corresponding I-WeBS survey site and subsites, as shown in Table 4.1. Peak counts of Annex I and QI bird species during the 2022/23 season are shown in Table 4.2.

Table 4.1: Licence areas and corresponding I-WeBS sites and subsites.

Licence Area	I-WeBS sites	I-WeBS subsites
A	Dublin Bay (OU404)	Merrion Gates – Sydney Parade Ave (OU473) Booterstown – Merrion Gates (OU462) Booterstown Reserve (OU461) Dun Laoghaire – Seapoint (OU460)
B	South Dublin Coastline (OU915)	Killiney Beach and Bay (OU916)
C	Bray Harbour (OT907) Bray Beach (OT913) Greystones (OT905)	Bray Harbour (OT907) Bray Beach (OT913) Greystones (OT905)
D	North Wicklow Coastal Marshes (OT401)	Kilcoole – north fields (OT501) Kilcoole – Newcastle (OT903) Kilcoole – Webbs (OT502) Kilcoole – west fields (OT503) Five Mile Point – Newcastle (OT902) Five Mile Point – Newcastle (offshore) (OT914) Killoughter- Newcastle (Beach & offshore) (OT910) Killoughter – Newcastle (Inland: Marsh & Farmland) (OT911) Broad Lough (OT001)

Table 4.2: I-WeBS peak counts of during the 2022/23 winter season. Species in bold indicate a QI of a European Site within the Zol. A dash (-) has been used where no data was returned.

Species	Designation	I-WeBS sites	2022/23 Peak Count
Bar-tailed godwit (<i>Limosa lapponica</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	612
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Common tern (<i>Sterna hirundo</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	6
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Dunlin (<i>Calidris alpina</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1386
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	13
Great northern Diver (<i>Gavia immer</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	1
		North Wicklow Coastal Marshes (Licence Area D)	1
Little Gull (<i>Larus minutus</i>)	<u>EU Birds Directive:</u> Annex I, Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	3
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Red-throated diver (<i>Gavia stellata</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	116
Eurasian curlew (<i>Numenius arquata</i>)	<u>EU Birds Directive:</u> Annex II species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	33
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	115
Eurasian teal (<i>Anas crecca</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	77
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	72
Eurasian wigeon (<i>Mareca penelope</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	714
Greylag goose (<i>Anser anser</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	91

Species	Designation	I-WeBS sites	2022/23 Peak Count
Northern shoveler (<i>Spatula clypeata</i>)	<u>EU Birds Directive:</u> Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	30
Red-breasted merganser (<i>Mergus serrator</i>)	<u>EU Habitats Directive:</u> Annex II species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	19
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	627
		South Dublin Coastline (Licence Area B)	16
		Bray Beach and Greystones (Licence Area C)	191
		North Wicklow Coastal Marshes (Licence Area D)	54
Black-legged kittiwake (<i>Rissa tridactyla</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Black-tailed godwit (<i>Limosa limosa</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	680
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	14
Brent goose (<i>Branta bernicla</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	312
		South Dublin Coastline (Licence Area B)	12
		Bray Beach and Greystones (Licence Area C)	88
		North Wicklow Coastal Marshes (Licence Area D)	45
Common gull (<i>Larus canus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	53
		South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	5
Common redshank (<i>Tringa totanus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	246
		South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	25
Common scoter (<i>Melanitta nigra</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	1
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	2
Common shelduck (<i>Tadorna tadorna</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	9
		South Dublin Coastline (Licence Area B)	4
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	5
		Dublin Bay (Licence Area A)	676

Species	Designation	I-WeBS sites	2022/23 Peak Count
Eurasian oystercatcher (<i>Haematopus ostralegus</i>)	<u>Protected Species:</u> Wildlife Acts	South Dublin Coastline (Licence Area B)	2
		Bray Beach and Greystones (Licence Area C)	110
		North Wicklow Coastal Marshes (Licence Area D)	8
European shag (<i>Gulosus aristotelis</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	7
		Bray Beach and Greystones (Licence Area C)	74
		North Wicklow Coastal Marshes (Licence Area D)	58
Great black-backed gull (<i>Larus marinus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	6
		South Dublin Coastline (Licence Area B)	3
		Bray Beach and Greystones (Licence Area C)	12
		North Wicklow Coastal Marshes (Licence Area D)	7
Great cormorant (<i>Phalacrocorax carbo</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	54
		South Dublin Coastline (Licence Area B)	17
		Bray Beach and Greystones (Licence Area C)	4
		North Wicklow Coastal Marshes (Licence Area D)	55
Great crested grebe (<i>Podiceps cristatus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	202
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Grey plover (<i>Pluvialis squatarola</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	8
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	3
Herring gull (<i>Larus argentatus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	89
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	68
		North Wicklow Coastal Marshes (Licence Area D)	73
Lesser black-backed gull (<i>Larus fuscus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	3
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	2
		North Wicklow Coastal Marshes (Licence Area D)	2
Red knot (<i>Calidris canutus</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1250
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Ringed plover (<i>Charadrius hiaticula</i>)	<u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	18
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	11
		North Wicklow Coastal Marshes (Licence Area D)	1
Purple Sandpiper (<i>Calidris maritima</i>)	N/A	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-

Species	Designation	I-WeBS sites	2022/23 Peak Count
		Bray Beach and Greystones (Licence Area C)	4
		North Wicklow Coastal Marshes (Licence Area D)	-
Sanderling (<i>Calidris alba</i>)	N/A	Dublin Bay (Licence Area A)	23
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	-
Turnstone (<i>Arenaria interpres</i>)	N/A	Dublin Bay (Licence Area A)	7
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	24
		North Wicklow Coastal Marshes (Licence Area D)	-
Common kingfisher (<i>Alcedo atthis</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	1
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	1
Little egret (<i>Egretta garzetta</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	29
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	6
Mediterranean gull (<i>Larus melanocephalus</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	2
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	1
		North Wicklow Coastal Marshes (Licence Area D)	2
Ruff (<i>Philomachus pugnax</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	1
Sandwich tern (<i>Sterna sandvicensis</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	3
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	51
		North Wicklow Coastal Marshes (Licence Area D)	22
Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>)	<u>EU Birds Directive:</u> Annex I, Annex II & Annex III species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	3
Whooper swan (<i>Cygnus cygnus</i>)	<u>EU Birds Directive:</u> Annex I species <u>Protected Species:</u> Wildlife Acts	Dublin Bay (Licence Area A)	-
		South Dublin Coastline (Licence Area B)	-
		Bray Beach and Greystones (Licence Area C)	-
		North Wicklow Coastal Marshes (Licence Area D)	71

Wintering bird surveys were conducted from October 2022 to March 2023 which found a number of QI and Annex I bird species using the habitats in the licence areas. These records are outlined in Appendix D. Breeding

bird surveys were conducted from land in April to June 2023 in Licence Areas B, C and D. These results are presented in Appendix E.

A desk-based review of the NBDC on the 2 February 2023 found a number of records from the last 20 years of protected species located within 1km of the licence areas. These records are outlined in Table 4.3. Additionally, a record of an Annex II species not designated by European sites within the Zol were returned, loggerhead turtle (*Caretta caretta*).

No walkover surveys for other protected species were conducted to inform this AA screening.

Table 4.3: Results of the NBDC desk-based review of Annex II species (not including birds). Species in bold indicated a QI of a European Site within the Zol.

Species	Designation	Licence area	Number of records	Most recent record
Bottle-nosed Dolphin (<i>Tursiops truncatus</i>)	EU Habitats Directive: Annex II & Annex IV species Protected Species: Wildlife Acts	Licence Area A	1	2015
		Licence Area B	64	2019
		Licence Area C	6	2018
		Licence Area D	21	2019
Harbour Porpoise (<i>Phocoena phocoena</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	7	2018
		Licence Area B	193	2020
		Licence Area C	88	2020
		Licence Area D	44	2021
Common Seal (<i>Phoca vitulina</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	2	2018
		Licence Area C	-	-
		Licence Area D	2	2018
Grey Seal (<i>Halichoerus grypus</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	7	2021
		Licence Area B	21	2021
		Licence Area C	34	2021
		Licence Area D	39	2022
Loggerhead Turtle (<i>Caretta caretta</i>)	EU Habitats Directive: Annex II & IV Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	1	2004
		Licence Area C	-	-
		Licence Area D	-	-
European Otter (<i>Lutra lutra</i>)	EU Habitats Directive: Annex II & Annex IV Protected Species: Wildlife Acts	Licence Area A	2	2015
		Licence Area B	6	2016
		Licence Area C	1	1980
		Licence Area D	36	2018

4.1.3 Aquatic Environment

The Survey Works are in the vicinity of a number of watercourses and bodies of transitional and coastal water. The Irish Sea is hydrologically linked to the licence areas as the works extend from Mean High Water Spring (MHWS) seaward and there is a link via surface water run-off or seepage through the shingle shore, which is highly porous.

Broad Lough and Kilcoole Marsh are located within 100m of the Survey Works and are hydrologically linked through surface water run-off. BREWERY STREAM_010 enters the Dublin Bay within the Survey Works area. KILL OF THE GRANGE STREAM_010, SHANGANAGH_010, KILRUDDERY_DEERPARK_010 and THREE TROUTS

STREAM_010 enter the Southwestern Irish Sea – Killiney Bay (HA10) within the Survey Works area. Kilcoole Stream_010 and NEWCASTLE (WICKLOW)_010 flow adjacent to the Survey Works before flowing into Kilcoole Marsh. Inchanappa_010 flows adjacent to the Survey Works before flowing into Broad Lough. The watercourses, transitional waterbodies and coastal waterbodies crossing or adjacent to the Survey Works are summarised in Table 4.4.

Table 4.4: Summary of watercourses, transitional and coastal waterbodies interacting with the licence areas (EPA, 2016–2021 data set)

Licence Area	Name	European Code	WFD status	Risk status
A	BREWERY STREAM_010	IE_EA_09B130400	Moderate	Under review
A	Dublin Bay	IE_EA_090_0000	Good	Not at risk
B	KILL OF THE GRANGE STREAM_010	IE_EA_10K020200	Poor	At risk
B	SHANGANAGH_010	IE_EA_10S010600	Moderate	Not at risk
B	Irish Sea Dublin (HA 09)	IE_EA_070_0000	Good	Not at risk
B-D	Southwestern Irish Sea – Killiney Bay (HA10)	IE_EA_100_0000	High	Not at risk
C	KILRUDDERY_DEERPARK_010	IE_EA_10K520710	Moderate	Under review
D	Kilcoole Marsh	IE_EA_120_0100	Moderate	Under review
D	THREE TROUTS STREAM_010	IE_EA_10T030580	Good	Not at risk
D	Kilcoole Stream_010	IE_EA_10K010580	Moderate	At risk
D	NEWCASTLE (WICKLOW)_010	IE_EA_10N010600	Moderate	At risk
D	Broad Lough	IE_EA_130_0100	Moderate	At risk
D	Inchanappa_010	IE_EA_10I020430	Good	Under review

4.1.4 Invasive Species

A desk-based review of the NBDC on the 2 February 2023 found a number of records of Third Schedule invasive species within 1km of the licence areas. These records are outlined in Table 4.5.

Table 4.5: Results of the NBDC desk-based review of invasive species.

Species	Licence Area	Number of records	Most recent record
American skunk-cabbage (<i>Lysichiton americanus</i>)	Licence Area A	-	-
	Licence Area B	1	2019
	Licence Area C	-	-
	Licence Area D	-	-
Canadian waterweed (<i>Elodea canadensis</i>)	Licence Area A	-	-
	Licence Area B	1	2009
	Licence Area C	-	-
	Licence Area D	-	-
Giant hogweed (<i>Heracleum mantegazzianum</i>)	Licence Area A	-	-
	Licence Area B	7	2019
	Licence Area C	2	2021
	Licence Area D	-	-
Himalayan balsam (<i>Impatiens glandulifera</i>)	Licence Area A	1	2019
	Licence Area B	-	-

Species	Licence Area	Number of records	Most recent record
	Licence Area C	1	2022
	Licence Area D	-	-
Japanese knotweed (<i>Fallopia japonica</i>)	Licence Area A	15	2020
	Licence Area B	1	2020
	Licence Area C	-	-
	Licence Area D	6	2022
Nuttall's waterweed (<i>Elodea nuttallii</i>)	Licence Area A	-	-
	Licence Area B	2	1992
	Licence Area C	-	-
	Licence Area D	-	-
Rhododendron (<i>Rhododendron ponticum</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	2	2018
Sea-buckthorn (<i>Hippophae rhamnoides</i>)	Licence Area A	-	-
	Licence Area B	4	2021
	Licence Area C	-	-
	Licence Area D	12	2022
Three-cornered leek (<i>Allium triquetrum</i>)	Licence Area A	5	2022
	Licence Area B	12	2022
	Licence Area C	-	-
	Licence Area D	2	2022
Harlequin ladybird (<i>Harmonia axyridis</i>)	Licence Area A	2	2022
	Licence Area B	1	2019
	Licence Area C	-	-
	Licence Area D	-	-
American mink (<i>Mustela vison</i>)	Licence Area A	-	-
	Licence Area B	-	-
	Licence Area C	-	-
	Licence Area D	2	2021
Brown rat (<i>Rattus norvegicus</i>)	Licence Area A	1	2014
	Licence Area B	1	2012
	Licence Area C	1	2016
	Licence Area D	1	2013
Grey squirrel (<i>Sciurus carolinensis</i>)	Licence Area A	26	2022
	Licence Area B	12	2022
	Licence Area C	6	2022
	Licence Area D	4	2022

Records of a number of third schedule and other invasive species were recorded during site visits in July 2023. Those recorded within the licence areas are detailed in Table 4.6 below.

Table 4.6: Invasive species results from the walkover surveys, in July 2023.

Common name	Scientific name	Licence Area(s)	Description
Sea buckthorn	<i>Hippophae rhamnoides</i>	A, D	The invasive species was present along the foreshore but not within the Proposed Work area
Giant hogweed	<i>Heracleum mantegazzianum</i>	A, D	The invasive species was present along the foreshore but not within the Proposed Work area
Three-cornered leek	<i>Allium triquetrum</i>	A, D	The invasive species was present along the foreshore but not within the Proposed Work area

4.2 European Sites Within the Zol of the Survey Works

The Survey Works were examined with reference to their location to European sites⁶ (see Appendix A, Figure 1), and taking account of the potential effect pathways outlined in Table 3.1, the following European sites are considered to be within the Zone of Influence (Zol) of the Survey Works:

- South Dublin Bay SAC (000210) – Licence Area A located within SAC (NPWS, 2013a);
- Bray Head SAC (000714) – Licence Area C located within SAC (NPWS, 2017a);
- The Murrough Wetlands SAC (002249) – Licence Area D located within SAC (NPWS, 2021);
- Rockabill to Dalkey Island SAC (003000) – located 4km east of works (direct distance) and 4.5km east hydrological distance (NPWS, 2013b);
- Wicklow Mountains SAC (002122) - located 8.9km west direct distance, 11.8km upstream hydrological connection (NPWS, 2017b);
- Lambay Island SAC (000204) - located 21.8km north east direct distance and 23.2km hydrological distance (NPWS, 2013c);
- Codling Fault Zone SAC (003015) - located 28.5km north east direct distance and hydrological distance (NPWS, 2023c);
- South Dublin Bay and River Tolka Estuary SPA (004024) – Licence Area A located within SPA (NPWS, 2015a);
- The Murrough SPA (004186) – Licence Area C located within SPA (NPWS, 2022a);
- Dalkey Islands SPA (004172) – located 0.5km north east both direct distance and hydrological distance (NPWS, 2022b);
- Wicklow Head SPA (004127) – located 2.5km south east both direct distance and hydrological distance (NPWS, 2022c);
- North Bull Island SPA (004006) – located 4.8km north east both direct distance and hydrological distance (NPWS, 2015b);
- North-West Irish Sea SPA (004236) – located 4.8km north east both direct distance and hydrological distance (NPWS, 2023d);
- Wicklow Mountains SPA (004040) - located 9.4km west direct distance, no hydrological connection (NPWS, 2022d);
- Howth Head Coast SPA (004113) – located 9.9km north east both direct distance and hydrological distance (NPWS, 2022e);

⁶ Distances are calculated to the nearest point of all the schemes.

- Baldoyle Bay SPA (004016) – located 10.3km north direct distance and 17.5km hydrological distance (NPWS, 2013d);
- Irelands Eye SPA (004117) – located 13.1km north east direct distance and 14.2km hydrological distance (NPWS, 2022f);
- Malahide Estuary SPA (004025) – located 14.9km north direct distance and 20.7km hydrological distance (NPWS, 2013e);
- Rogerstown Estuary SPA (004015) – located 20.5km north direct distance and 24.7km hydrological distance (NPWS, 2013f);
- Lambay Island SPA (004069) – located 21.8km north east direct distance and 23.2km hydrological distance (NPWS, 2022g);
- Skerries Islands SPA (004122) - located 29.2km north direct distance and 24.7km hydrological distance (NPWS, 2022h);
- Rockabill SPA (004014) - located 29.7km north west direct distance and 33.2km hydrological distance (NPWS, 2013g); and
- Poulaphouca Reservoir SPA (004063) - located 23.9km south west direct distance, no hydrological connection (NPWS, 2022i).

4.2.1 Other European Sites

The following European sites are within the vicinity of the Survey Works but considered outside the Zol:

- Ballyman Glen SAC (000713) is located 2.8km west and 3.2km upstream of the Survey Works via DARGLE_030 and DARGLE_040. It is designated for petrifying springs with tufa formation and alkaline fens (NPWS, 2013h). These are Ballyman Glen SAC does not have species as qualifying interest (i.e. no mobile birds and mammals). The SAC is in a separate bedrock aquifer to the Survey Works. Given the overland distance, lack of hydrological connectivity/ ecological connectivity and nature of the works, this SAC is considered outside the Zol of the Survey Works.
- Glen of the Downs SAC (000719) is located 3.4km west and 4.2km upstream of the Survey Works via THREE TROUTS STREAM_010. It is designated for its old sessile oak woods (NPWS, 2013i). Glen of the Downs SAC does not have species as a qualifying interest. Given the overland distance and lack of hydrological connectivity/ ecological connectivity, this SAC is considered outside the Zol of the Survey Works.
- Wicklow Reef SAC (002274) is located 3.8km south east and is hydrological linked over the same distance through the Irish Sea. Wicklow Reef SAC is designated for reefs. It does not have species as a qualifying interest. (NPWS, 2013j). Given the hydrological distance and small-scale nature of the works this SAC is considered outside the Zol of the Survey Works.
- North Dublin Bay SAC (000206) is located 4.8km north east and hydrological linked over the same distance through the Irish Sea. (NPWS, 2013k). It is designated for estuarine and dune habitats as well as the species Petalwort (*Petalophyllum ralfsii*). Given the hydrological distance and small-scale nature of the works, this SAC is considered outside the Zol of the Survey Works.
- Knocksink Wood SAC (000725) is located 5.6km west and 6.1km upstream of the Survey Works via GLENCULLEN_010, GLENVULLEN_020, DARGLE_030 and DARGLE_040. Knocksink Wood SAC is designated for petrifying springs, old sessile oak woods and alluvial forests (NPWS, 2019d). It does not have species as qualifying interest. Given the overland distance and lack of hydrological connectivity/ ecological connectivity, this SAC is considered outside the Zol of the Survey Works.
- Magherabeg Dunes SAC (001766) is located 6.8km south and hydrologically linked through the Irish Sea over 8.4km (NPWS, 2017c). It is designated for dune habitats with no species QIs. Given the intervening distance and small-scale nature of the Survey Works, this SAC is considered outside the Zol of the Survey Works.

- Carriggower Bog SAC (000716) is located 7.7km west and 9.9km upstream of the Survey Works via NEWTOWNMOUNTKENNEDY_010 and NEWTOWNMOUNTKENNEDY_020. Carriggower Bog SAC is designated for transition mires and quaking bogs and does not have species as qualifying interest (NPWS, 2013l). Given the overland distance and lack of hydrological connectivity/ ecological connectivity, this SAC is considered outside the Zol of the Survey Works.
- Deputy's Pass Nature Reserve SAC (000717) is located 8.5km south west with no hydrological connection. It is designated for old sessile oak woods (NPWS, 2013m). Deputy's Pass Nature Reserve SAC does not have species as qualifying interest. Given the overland distance and lack of hydrological connectivity/ ecological connectivity, this SAC is considered outside the Zol of the Survey Works.
- Howth Head SAC (000202) is located 8.7km north east and is hydrological linked over the same distance through the Irish Sea. It is designated for vegetated sea cliffs and coastal heath and does not have species as qualifying interest (NPWS, 2013n). Given the overland distance and nature of the designated habitats, this SAC is considered to be outside the Zol of the Survey Works.
- Baldoyle Bay SAC (000199) is located 10.3km north and hydrologically linked over 16.1km through the Irish Sea. It is designated for mudflats and sandflats, annuals colonising mud and sand and Atlantic and Mediterranean salt meadows (NPWS, 2013o). Baldoyle Bay SAC does not have species as qualifying interest. It is considered that any potential pollution event within coastal waters will be ecologically inconsequential. Given the overland distance and hydrological distance, this SAC is considered to be outside the Zol of the Survey Works.
- Ireland's Eye SAC (002193) is located 13.1km north east and hydrologically linked over 14.2km through the Irish Sea. It is designated for perennial vegetation of stony banks and vegetated sea cliffs and does not have species as qualifying interest (NPWS, 2014). Given the overland distance and nature of the designated habitats, this SAC is considered to be outside the Zol of the Survey Works.
- Malahide Estuary SAC (000205) is located 14.2km north and hydrologically linked over 20.9km through the Irish Sea. It is designated for mudflats and sandflats, annuals colonising mud and sand, Atlantic and Mediterranean salt meadows, shifting dunes along the shoreline and fixed coastal dunes (NPWS, 2017d). Malahide Estuary SAC does not have species as qualifying interest. It is considered that any potential pollution event within coastal waters will be ecologically inconsequential. Given the overland distance and hydrological distance, this SAC is considered to be outside the Zol of the Survey Works.
- Rogerstown Estuary SAC (000208) is located 20.8km north and hydrologically linked over 25.9km through the Irish Sea. It is designated for estuary, mudflats and sandflats, annuals colonising mud and sand, Atlantic and Mediterranean salt meadows, shifting dunes along the shoreline and fixed coastal dunes (NPWS, 2013p). Rogerstown Estuary SAC does not have species as qualifying interest. It is considered that any potential pollution event within coastal waters will be ecologically inconsequential. Given the overland distance and hydrological distance, this SAC is considered to be outside the Zol of the Survey Works.

4.3 Identification of Relevant European Sites and QIs

Table 4.7 identifies the relevant European sites, whose designated area or functionally linked land lies within one or more of the Zols and therefore requires consideration for the potential for LSE. No ecological pathway or functional link was identified between the Survey Works and other European sites other than those identified in Table 4.3.

Table 4.7: Assessment of the Proposed Development's Zol. QI in grey are outside Zol and won't be assessed further.

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
Special Areas of Protection				
South Dublin Bay SAC (000210) 0m. Within Licence Area A	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works.	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	<p>To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ The permanent habitat area is stable or increasing; ▪ Maintain the extent of the <i>Zostera</i>-dominated community; ▪ Conserve the high quality of the <i>Zostera</i>-dominated community; and ▪ Conserve the following community type in a natural condition: Fine sands with <i>Angulus tenuis</i> community complex. <p>No conservation objectives were present Annual vegetation of drift lines [1210] for South Dublin Bay SAC. Conservation objectives listed for The Murrough Wetlands SAC can be used as proxy.</p> <p>No conservation objectives were present <i>Salicornia</i> and other annuals colonising mud and sand for South Dublin Bay SAC. Conservation objectives listed for North Dublin Bay SAC can be used as proxy and are as follows: To restore the favourable conservation condition of <i>Salicornia</i> and other annuals colonizing mud and sand in North Dublin Bay SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is maintained or increased ▪ Habitat distribution does not decline or change
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, the SAC is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, the SAC is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	500m from project (Disturbance of species)	N/A. No mobile designated QI species are present.		
	1km from project (Habitat degradation – changes in water quality)	Yes, SAC is within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the Survey Works are present within the same surface water catchment.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, groundwater is absent from the SAC habitats.		<ul style="list-style-type: none"> ▪ The presence/absence of physical barrier is maintained or restored ▪ Creeks and pans structure and tidal regime are maintained ▪ The vegetation structure (zonation, vegetation height) is maintained ▪ The vegetation cover is maintained higher than 90% outside creeks ▪ The vegetation composition is maintained (with maintenance of species-poor communities listed in SMP) ▪ Annual spread of <i>Spartina anglica</i> has to be maintained lower than 1% <p>No conservation objectives were present Embryonic shifting dunes for South Dublin Bay SAC. Conservation objectives listed for North Dublin Bay SAC can be used as proxy and are as follows: To restore the favourable conservation condition of Embryonic shifting dunes in North Dublin Bay SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is maintained or increased ▪ Habitat distribution does not decline or change ▪ The presence/absence of physical barrier is maintained or restored ▪ The vegetation structure (zonation) is maintained ▪ More than 95% of the vegetation cover of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) is healthy ▪ The presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Negative indicator species are maintained at level inferior to the 5% of the cover
Bray Head SAC (000714) Om. Within Licence Area C	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]	<p>To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Bray Head SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable The habitat distribution does not decline No alteration occurs to natural functioning of geomorphological and hydrological processes, due to artificial barriers Vegetation structure (zonation, height) are maintained Vegetation composition is maintained as follow: typical species and sub-species communities are maintained (Barron et al., 2011), negative indicator species cover is less than 5%, bracken and woody species are respectively less than 10% and 20%. <p>To restore the favourable conservation condition of European dry heaths in Bray Head SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable or increasing The habitat distribution does not decline Soil nutrients are maintained Vegetation community diversity is maintained Vegetation composition is as follow: lichen and bryophytes are present at each monitoring stop, the cover of number of positive indicator species is 50% for siliceous dry heath and 50-75% for calcareous dry heath,
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, the SAC is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, the SAC is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	500m from project (Disturbance of species)	N/A. No mobile designated QI species are present.		
	1km from project (Habitat degradation – changes in water quality)	Yes, the SAC is within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the Survey Works are present within the same surface water catchment.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, the Survey Works are present within the same groundwater catchment		<p>dwarf shrubs cover is less than 50%, negative indicator species and non-native species covers are both less than 1%, native trees and shrubs are less than 20%, bracken is less than 10%, soft rush is less than 10%.</p> <ul style="list-style-type: none"> Vegetation structure shows limited signs of damage (low level of senescent ling and signs of browsing, no signs of burning, all growth phases of ling present, low percentage of disturbed bare ground) Distribution and population sizes of rare, threatened or scarce species associated with the habitat are not in decline
The Murrough Wetlands SAC (002249) Om. Within Licence Area D	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]	<p>To restore the favourable conservation condition of Annual vegetation of drift lines in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable or increasing The habitat distribution does not decline The natural circulation of sediment and organic matter is restored Vegetation structure (zonation) is maintained Vegetation composition is as follow: typical species and sub-communities are maintained, cover of native negative indicator species is low (based on Delaney et al., 2013), non-native species cover is less than 20% <p>To restore the favourable conservation condition of Perennial vegetation of stony banks in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable or increasing The habitat distribution does not decline
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, the SAC is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, the SAC is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	500m from project (Disturbance of species)	N/A. No mobile designated QI species are present.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	1km from project (Habitat degradation – changes in water quality)	Yes, SAC is within the Zol for habitat degradation – changes in water quality.		<ul style="list-style-type: none"> ▪ The natural circulation of sediment and organic matter is restored ▪ Habitat affected by disturbance is less than 20% ▪ Vegetation structure (zonation) is maintained ▪ Vegetation composition is as follow: communities and typical species maintained, native and negative indicator species and non-native species covers are low (targets based on Martin et al., 2017) <p>To restore the favourable conservation condition of Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ The habitat area is stable or increasing ▪ The habitat distribution does not decline ▪ No occurrence of human disturbance on hydrology ▪ Vegetation structure is as follow: plant height standard deviation more than 5, cover of disturbed ground less than 5%, zonation is adequate, no loss of natural transitions. ▪ Vegetation composition as follow: Typical species in adequate number (based on Brophy et al., 2019), no establishment of invasive species such as <i>Spartina</i> spp. ▪ No signs of infilling, reclamation, turf-cutting or pollution or other negative indicators ▪ Distribution or population sizes of rare, threatened or scarce species associated with the habitat does not decline
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the SAC is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, the SAC is present within the groundwater catchment		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>To restore the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ The habitat area is increasing ▪ The habitat distribution does not decline ▪ No occurrence of human disturbance on hydrology ▪ Vegetation structure is as follow: cover of disturbed ground less than 5%, no loss of natural transitions ▪ Vegetation composition is as follow: Minimum number of typical species based on Brophy et al., 2019, no establishment of invasive species such as <i>Spartina</i> spp. ▪ No signs of infilling, reclamation, turf-cutting or pollution or other negative indicators ▪ Distribution or population sizes of rare, threatened or scarce species associated with the habitat does not decline <p>To restore the favourable conservation condition of Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>* in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ The habitat area is stable or increasing ▪ The habitat distribution does not decline ▪ Soil pH and nutrients status are maintained ▪ Active peat formation are maintained ▪ Natural hydrological regimes and drainage conditions are maintained or restored ▪ Water quality (including pH and nutrient levels) is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Vegetation composition is as follow: cover of <i>Cladium mariscus</i> at least 25%, cover of typical vascular plants is maintained adequate, cover of native negative indicator species is at insignificant levels, cover of non-native species is less than 1%, covered of scattered native trees and shrubs us less than 10%, cover of algae is less than 2%. The height of live shoot is over 1m Disturbed proportion of vegetation cover where tufa is present is less than 1% Distribution or population sizes of rare, threatened or scarce species associated with the habitat does not decline, and features of local distinctiveness are maintained Transitional areas between fen and adjacent habitats are maintained or restored <p>To restore the favourable conservation condition of Alkaline fens in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The habitat area is stable or increasing The habitat distribution does not decline Soil pH and nutrients status are maintained Active peat formation are maintained Natural hydrological regimes and drainage conditions are maintained or restored Water quality (including pH and nutrient levels) is maintained Community vegetation diversity is maintained Vegetation composition is as follow: typical brown mosses and typical vascular plants maintained adequate, native negative indicator species at insignificant level,

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>non-native species cover less than 1%, cover of scattered trees and shrubs less than 10%, algal cover less 2%.</p> <ul style="list-style-type: none"> Vegetation structure is as follow: at least 50% of the live leaves/flowering shoots are more than either 5cm or 15cm Disturbed bare ground and proportion of vegetation cover where tufa is present are respectively less than 1% and 1% Distribution or population sizes of rare, threatened or scarce species associated with the habitat does not decline, and features of local distinctiveness are maintained Transitional areas between fen and adjacent habitats are maintained or restored
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Reefs [1170] Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	<p>To maintain the favourable conservation condition of Reefs in Rockabil to Dalkey Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The permanent habitat area is stable or increasing The distribution of reef is stable of increasing Community structure Current-swept subtidal reef community complex in conserved <p>To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Access to suitable areas for the species is not restricted by artificial barriers
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the Zol for temporary habitat loss and mortality.		
	200m from project (Habitat degradation – changes in air quality)	No, the site and functionally linked habitat are outside the Zol for habitat degradation -changes in air quality and therefore there is no pathway to an effect.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	500m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		<ul style="list-style-type: none"> Activities disturbance is maintained at levels that does not adversely affect the species
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	No, the site and functionally linked habitat are outside the surface water catchment and therefore there is no pathway to an effect.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, the site and functionally linked habitat are outside the groundwater catchment and therefore there is no pathway to an effect.		
Wicklow Mountains SAC (002122) 8.9km west direct distance, 11.8km upstream hydrological connection	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	<p>Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]</p> <p>Natural dystrophic lakes and ponds [3160]</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]</p> <p>European dry heaths [4030]</p>	<p>To maintain the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Habitat area is stable or increased and subjected to natural processes Habitat distribution does not decline Typical species are present and in good conditions, and their abundance and distribution is maintained Vegetation zonation is present well distributed and in good condition Depth of vegetation is maintained Hydrological regime is maintained Lake substratum quality is maintained
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the Zol for temporary habitat loss and mortality.		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked is present within the Zol for habitat degradation – changes in air quality.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	500m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.	Alpine and Boreal heaths [4060] Calaminarian grasslands of the <i>Violetalia calaminariae</i> [6130] Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]	<ul style="list-style-type: none"> Water transparency is maintained Water nutrient are maintained or restored at their original concentration Phytoplankton biomass and composition are maintained Algal cover and EPA phytobenthos metric, Macrophyte status, Water colour, dissolved organic Carbon (DOC) are maintained or restored Acidification status is maintained Turbidity is maintained appropriate to support the habitat Fringing habitat area and condition are maintained
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in water quality.	Blanket bogs (* if active bog) [7130] Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] Calcareous rocky slopes with chasmophytic vegetation [8210] Siliceous rocky slopes with chasmophytic vegetation [8220] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] Otter (<i>Lutra lutra</i>) [1355]	
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the SAC and functionally linked habitat is within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, the site and functionally linked habitat are outside the groundwater catchment and therefore there is no pathway to an effect.		<p>To maintain the favourable conservation condition of Natural dystrophic lakes and ponds in Wicklow Mountains SAC, which is defined by the following list of attributes and targets</p> <ul style="list-style-type: none"> Habitat area is stable or increased and subjected to natural processes Habitat distribution does not decline Typical species are present and in good conditions, and their abundance and distribution is maintained Vegetation zonation is present well distributed and in good condition Depth of vegetation is maintained Hydrological regime is maintained Lake substratum quality is maintained Water transparency is maintained Water nutrient are maintained or restored at their original concentration Phytoplankton biomass and composition are maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Algal cover and EPA phytobenthos metric, Macrophyte status, Water colour, dissolved organic Carbon (DOC) are maintained or restored Acidification status is maintained Turbidity is maintained appropriate to support the habitat Fringing habitat area and condition are maintained <p>To restore the favourable conservation condition of Northern Atlantic wet heaths with <i>Erica tetralix</i> in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Habitat area is stable or increased and subjected to natural processes Habitat distribution does not decline Soil nutrients are maintained Vegetation community diversity is maintained Cross-leaved heath (<i>Erica tetralix</i>) is present within a 20m radius of each monitoring stop Cover of positive indicator species is at least 50%, cover of Cladonia and Sphagnum species, Racomitrium lanuginosum and pleurocarpous mosses are at least 10%, cover of ericoid species and crowberry is at least 15%, cover of dwarf shrubs is lower than 75%, total cover of negative indicator species and non-native species are both lower than 1 %, cover of scattered trees and scrubs is lower than 20%, cover of bracken is lower than 10%, cover of soft rush is lower than 10% Less than 10% of sphagnum cover is damaged Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (<i>Empetrum</i>)

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p><i>nigrum</i>) and bog-myrtle (<i>Myrica gale</i>) have signs of browsing</p> <ul style="list-style-type: none"> ▪ No sign of burning is present in sensitive areas ▪ Disturbed bare ground is lower than 10% ▪ Area showing signs of drainage from heavy trampling, tracking or ditches is lower than 10% ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of European dry heaths in Wicklow Mountains SAC which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ Vegetation community diversity is maintained ▪ At each monitoring stops, lichens and bryophytes species are at least three, and number of positive indicators at least two ▪ Cover of positive indicator species is at least 50% for siliceous dry heath and 50-75% for calcareous dry heath ▪ Dwarf shrub cover is lower than 50%, total cover of both non-native and invasive species is lower than 1%, cover of scattered native shrubs and trees is lower than 20%, cover of both bracken and soft rush is lower than 10%; senescent ling is lower of 50% ▪ Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (<i>Empetrum nigrum</i>) and bog-myrtle (<i>Myrica gale</i>) have signs of browsing

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ No sign of burning is present in sensitive areas ▪ Growth phase of ling occurs throughout ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of Alpine and Boreal heaths in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ Vegetation community diversity is maintained ▪ At each monitoring stops, lichens and bryophytes species are at least three, and number of positive indicators at least two ▪ Cover of positive indicator species is at least 66% ▪ Dwarf shrub cover is lower than 10%, total cover of negative indicator species is lower than 10%, cover of non-native species is lower than 1% ▪ Sign of grazing are lower than 10% ▪ Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (<i>Empetrum nigrum</i>) and bog-myrtle (<i>Myrica gale</i>) have signs ▪ Browsing ▪ No sign of burning is present in sensitive areas ▪ Covered of disturbed bare ground is lower than 10% ▪ Rare, threatened or scarce species associated with the habitat are not in decline

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>To maintain the favourable conservation condition of Calaminarian grasslands of the <i>Violetalia calaminariae</i> in Wicklow Mountains SAC which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Open ground is maintained ▪ High copper levels of soil are maintained ▪ Low and open vegetation is maintained ▪ Metallophyte bryophytes population and diversity are maintained <p>To restore the favourable conservation condition of Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) in Wicklow Mountains SAC which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ Vegetation community diversity is maintained ▪ At each monitoring stops, number of positive indicator species are at least seven, and high quality indicator species are at least two for rich examples and one for poor examples ▪ Species richness is at least 25 ▪ Cover of non-native species is lower than 1, cover of negative indicator species is individually less than 10% and collectively less than 20%

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Cover of sphagnum species is lower than 10%, cover of Polytrichum is lower than 25%, cover of shrubs or bracken is lower than 5% ▪ Graminoid ratio is 20-90% ▪ Proportion of the sward is 25% and it is between 5cm and 50cm tall ▪ Cover of litter is lower than 10% ▪ Area with grazing or disturbance levels are less than 20m² ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of Blanket bogs (if active bog) in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ At least 99% of total Annex I blanket bog area is active ▪ Natural hydrology is not affected ▪ Vegetation communities are maintained ▪ At each monitoring stops, number of positive indicators species are at least seven ▪ Cover of bryophytes and lichen is at least 10 ▪ Cover of potential dominant species is lower than 75% ▪ Covers of negative and non-native species are both lower than 1%, cover of scatter native shrubs and trees is lower than 10%, damaged Sphagnum cover is lower than 10%

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (<i>Empetrum nigrum</i>) and bog-myrtle (<i>Myrica gale</i>) have signs of browsing ▪ No sign of burning is present in sensitive areas ▪ Covered of disturbed bare ground is lower than 10% ▪ Area showing signs of drainage from heavy trampling, tracking or ditches is less than 10% ▪ Rare, threatened or scarce species associated with the habitat are not in decline ▪ Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas <p>To restore the favourable conservation condition of Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ Bryophyte and non crustose lichen is at least 5% ▪ Covers of negative and non-native species are both lower than 1%, cover of grass species and dwarf shrubs is lower than 20%, cover of bracken, native trees and shrubs is lower than 25% ▪ Less than 50% of leaves of forbs and shoots of dwarf shrubs are damaged ▪ At each monitoring stops, number of positive indicators species is at least one

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Less than 10% of ground is disturbed by human or animals activities ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of Calcareous rocky slopes with chasmophytic vegetation in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Soil nutrients are maintained ▪ At each monitoring stop, number of Saxifraga and ferns indicators is at least one, number of positive indicator species is at least three ▪ Cover of non-native species is lower than 1%, cover of bracken and native trees and shrubs is lower than 25% ▪ Less than 50% of leaves of forbs and shoots of dwarf shrubs are damaged ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of Siliceous rocky slopes with chasmophytic vegetation in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Soil nutrients are maintained ▪ At each monitoring stop, number of positive indicator species is at least three ▪ Cover of non-native species is lower than 1%, cover of bracken and native trees and shrubs is lower than 25% ▪ Less than 50% of leaves of forbs and shoots of dwarf shrubs are damaged ▪ Rare, threatened or scarce species associated with the habitat are not in decline <p>To restore the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Habitat area is stable or increased and subjected to natural processes ▪ Habitat distribution does not decline ▪ Woodland area is maintained or increased ▪ Woodland diverse structure has a relatively closed canopy containing mature trees, subcanopy layer with semi-mature trees and shrubs and well-developed herb layer ▪ Woodland structure (community diversity, extent) is maintained ▪ Natural regeneration of woodland occurs in adequate proportions ▪ At least 30m³/ha of fallen timber is greater than 10cm diameter; there are 30 snags/ha; both categories include stems greater than 40cm diameter ▪ Veteran trees, indicator of local distinctiveness, native tree cover do not decline

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Typical species diversity is maintained Negative indicator species are absent or under control <p>To maintain the favourable conservation condition of Otter in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Species distribution does not decline Terrestrial, freshwater (lakes and rivers) habitats supporting the species do not decline Couching sites and holts do not decline Prey (fish) biomass does not decline Barriers connectivity does not increase
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] Grey Seal (<i>Halichoerus grypus</i>) [1364] Harbour Seal (<i>Phoca vitulina</i>) [1365]	To maintain the favourable conservation condition of Reefs in Lambay Island SAC, which is defined by the same conservation objectives listed for Rockabil to Dalkey Island SAC.
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the Zol for temporary habitat loss and mortality.		To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Bray Head SAC, which is defined by the by the same conservation objectives listed for Bray Head SAC.
	200m from project (Habitat degradation – changes in air quality)	No, the site and functionally linked habitat are outside the Zol for habitat degradation -changes in air quality and therefore there is no pathway to an effect.		No site-specific conservation objectives were present for <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] for Lambay Island SAC. Conservation objectives listed for Rockabil to Dalkey Island SAC (003000) can be used as proxy.
	500m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		To maintain the favourable conservation condition of Grey Seal and Harbour Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in water quality.		<ul style="list-style-type: none"> The access to suitable habitat is not restricted Breeding sites are maintained Moult haul-out sites are maintained Resting haul-out sites are maintained Disturbance correlated to human activities occur at levels that do not affect the species <p>To maintain the favourable conservation condition of Harbour Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The access to suitable habitat is not restricted Breeding sites are maintained Moult haul-out sites are maintained Resting haul-out sites are maintained Disturbance correlated to human activities occur at levels that do not affect the species
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked habitat is within the surface water catchment		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, the site and functionally linked habitat are outside the groundwater catchment and therefore there is no pathway to an effect.		
Codling Fault Zone SAC (003015) 28.5km north east direct distance and hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Submarine structures made by leaking gases [1180] Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	<p>To maintain the favourable conservation condition of Submarine structures made by leaking gases in Codling Fault Zone SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Habitat area is stable or increasing Habitat distribution is stable or increasing Structural integrity of the MDAC features is maintained
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the Zol for temporary habitat loss and mortality.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	200m from project (Habitat degradation – changes in air quality)	No, the site and functionally linked habitat are outside the Zol for habitat degradation -changes in air quality and therefore there is no pathway to an effect.		<ul style="list-style-type: none">▪ The Codling Fault Zone MDACs community complex is conserved in natural conditions <p>No site-specific conservation objectives were present for <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] for Codling Fault Zone SAC (003015). Conservation objectives listed for Rockabill to Dalkey Island SAC (003000) can be used as proxy.</p>
	500m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	No, the site and functionally linked habitat are outside the surface water catchment and therefore there is no pathway to an effect.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, the site and functionally linked habitat are outside the groundwater catchment and therefore there is no pathway to an effect.		
Special Protection Areas				
South Dublin Bay and River Tolka Estuary SPA (004024) 0m. Within Licence Area A	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Light-bellied Brent goose (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none">▪ Population trend is maintained or increased▪ The distribution of the species is maintained
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat	Yes, the SPA is present within the temporary footprint of the Survey Works	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	degradation – spread of invasive species)		Ringed plover (<i>Charadrius hiaticula</i>) [A137]	<p>To maintain the favourable conservation condition of oystercatcher in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of species is maintained <p>To maintain the favourable conservation condition of ringed plover in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of grey plover in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of knot in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of sanderling in South Dublin Bay and River Tolka Estuary SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased
	200m from project (Habitat degradation – changes in air quality)	Yes, the SPA is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Grey plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144]	
	300m from project (Disturbance of species)	Yes, the SPA is present within the Zol for disturbance.	Dunlin (<i>Calidris alpina</i>) [A149]	
	1km from project (Habitat degradation – changes in water quality)	Yes, the SPA is within the Zol for habitat degradation – changes in water quality.	Bar-tailed godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162]	
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the SPA is present within the surface water catchment.	Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]	
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, groundwater is absent from the SPA.	Roseate tern (<i>Sterna dougallii</i>) [A192] Common tern (<i>Sterna hirundo</i>) [A193] Arctic tern (<i>Sterna paradisaea</i>) [A194] Wetland and Waterbirds [A999]	

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ The distribution of the species is maintained <p>To maintain the favourable conservation condition of dunlin in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased ▪ The distribution of the species is maintained <p>To maintain the favourable conservation condition of bar-tailed godwit in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased ▪ The distribution of the species is maintained <p>To maintain the favourable conservation condition of redshank in South Dublin Bay and River Tolka Estuary SPA, by ensuring:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased ▪ The distribution of the species is maintained <p>To maintain the favourable conservation condition of black-headed gull in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased ▪ The distribution of the species is maintained <p>To maintain the favourable conservation condition of roseate tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Individual number is maintained or increased

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Distribution of roosting area does not decline ▪ Prey biomass does not decline ▪ Barriers to connectivity do not increase ▪ Disturbance level occur at level that do not affect the number of roosting sites <p>To maintain the favourable conservation condition of common tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Individual number is maintained or increased ▪ Breeding population abundance does not decline ▪ Mean number of young per breeding pair does not decline ▪ Distribution of breeding colonies and roosting area do not decline ▪ Prey biomass does not decline ▪ Barriers to connectivity do not increase ▪ Disturbance level occur at level that do not affect the number of roosting and breeding sites <p>To maintain the favourable conservation condition of Arctic tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Individual number is maintained or increased ▪ Distribution of and roosting areas do not decline ▪ Prey biomass does not decline ▪ Barriers to connectivity do not increase

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Disturbance level occur at level that do not affect the number of roosting sites <p>To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it, which is defined by the following list of attributes and targets:</p> <p>Wetland habitat area is maintained and is not less than 2,192 ha</p>
The Murrough SPA (004186) Om. Within Licence Area D	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Red-throated diver (<i>Gavia stellata</i>) [A001] Greylag goose (<i>Anser anser</i>) [A043] Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046] Wigeon (<i>Mareca penelope</i>) [A050]	No site-specific conservation objectives were present for Red-throated diver (<i>Gavia stellata</i>) [A001] for The Murrough SPA (004186). Conservation objectives listed for North-west Irish Sea SPA [004236] can be used as proxy
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, the SPA is present within the temporary footprint of the Survey Works	Teal (<i>Anas crecca</i>) [A052] Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] Herring gull (<i>Larus argentatus</i>) [A184] Little tern (<i>Sterna albifrons</i>) [A195]	No site-specific conservation objectives were present for Greylag goose (<i>Anser anser</i>) [A043] for The Murrough SPA (004186). Conservation objectives listed for Rogerstown Estuary SPA [004015] can be used as proxy
	200m from project (Habitat degradation – changes in air quality)	Yes, the SPA is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		No site-specific conservation objectives were present for Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA (004024) can be used as proxy
	300m from project (Disturbance of species)	Yes, the SPA is present within the Zol for disturbance.		No site-specific conservation objectives were present for Teal (<i>Anas crecca</i>) [A052] for The Murrough SPA (004186).

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	1km from project (Habitat degradation – changes in water quality)	Yes, the SPA is within the Zol for habitat degradation – changes in water quality.	Wetland and Waterbirds [A999]	Conservation objectives listed for North Bull Island SPA [004006] can be used as proxy
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, the SPA is present within the surface water catchment.		No site-specific conservation objectives were present for Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA (004024) can be used as proxy
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, the SPA is present within the groundwater catchment		No site-specific conservation objectives were present for Herring gull (<i>Larus argentatus</i>) [A184] for The Murrough SPA (004186). Conservation objectives listed for North-west Irish Sea SPA [004236] can be used as proxy No site-specific conservation objectives were present for Little tern (<i>Sterna albifrons</i>) [A195] for The Murrough SPA (004186). Conservation objectives listed for tern species at Rockabill SPA can be used as proxy No site-specific conservation objectives were present for Wetland and Waterbirds [A999] for The Murrough SPA (004186). Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA can be used as proxy
Dalkey Islands SPA (004172) – located 0.5km north east both direct distance and hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Roseate tern (<i>Sterna dougallii</i>) [A192] Common tern (<i>Sterna hirundo</i>) [A193] Arctic tern (<i>Sterna paradisaea</i>) [A194]	No site-specific conservation objectives were present for Roseate tern (<i>Sterna dougallii</i>) [A192] for Dalkey Islands SPA (004172). Conservation objectives listed for Rockabill SPA can be used as proxy.
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		No site-specific conservation objectives were present for Common tern (<i>Sterna hirundo</i>) [A193] for Dalkey Islands

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	degradation – spread of invasive species)			<p>SPA (004172). Coservation objectives listed for Rockabill SPA can be used as proxy.</p> <p>No site-specific conservation objectives were present for Arctic tern (<i>Sterna paradisaea</i>) [A194] for Rockabill SPA (004172),. Conservation objectives listed for South Dublin Bay and River Tolka Estuary SPA can be used as proxy.</p>
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, the SPA is within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No. Functionally linked habitat is not present within the groundwater catchment, therefore there is no pathway to an effect.		
Wicklow Head SPA (004127)	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Kittiwake (<i>Rissa tridactyla</i>) [A188]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
2.5km south east both direct distance and hydrological distance	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the temporary footprint of the Survey Works		the bird species listed as Special Conservation Interests for this SPA
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No. Functionally linked habitat is not present within the groundwater catchment, therefore there is no pathway to an effect.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadoma tadoma</i>) [A048]	To maintain the favourable conservation condition of Light-bellied Brent Goose in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works	Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Spatula clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	To maintain the favourable conservation condition of shelduck in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143]	To maintain the favourable conservation condition of teal in North Bull Island SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.	Sanderling (<i>Calidris alba</i>) [A144]	To maintain the favourable conservation condition of pintail in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is within the Zol for habitat degradation – changes in water quality.	Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	To maintain the favourable conservation condition of shoveler in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained To maintain the favourable conservation condition of oystercatcher in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, groundwater is absent from the SPA or functionally linked habitat.	Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of golden plover in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained To maintain the favourable conservation condition of grey plover in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained To maintain the favourable conservation condition of knot in North Bull Island SPA which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>To maintain the favourable conservation condition of sanderling in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of dunlin in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of black-tailed godwit in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of bar-tailed godwit in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of curlew in North Bull Island SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>To maintain the favourable conservation condition of redshank in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of turnstone in North Bull Island SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of black-headed gull in North Bull Island SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly occurring migratory waterbirds that utilise it, which is defined by the following list of attributes and targets:</p> <p>The permanent area occupied by the wetland habitat is stable and not less than 1,713 ha</p>
North-West Irish Sea SPA (004236)	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Red-throated Diver (<i>Gavia stellata</i>) [A001]	<p>To maintain the favourable conservation condition of red-throated diver at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Non-breeding population size does not decline

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
4.8km north east both direct distance and hydrological distance	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works	Great Northern Diver (<i>Gavia immer</i>) [A003] Fulmar (<i>Fulmarus glacialis</i>) [A009] Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	<ul style="list-style-type: none"> Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of great-northern diver at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Non-breeding population size does not decline Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of fulmar at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population size does not decline
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Common Scoter (<i>Melanitta nigra</i>) [A065] Little Gull (<i>Larus minutus</i>) [A177]	
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supportive habitat is within the Zol for habitat degradation – changes in water quality.	Common Gull (<i>Larus canus</i>) [A182] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Great Black-backed Gull (<i>Larus marinus</i>) [A187] Kittiwake (<i>Rissa tridactyla</i>) [A188]	
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, groundwater is absent from the SPA or functionally linked habitat		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
			<p>Roseate Tern (<i>Sterna dougallii</i>) [A192]</p> <p>Common Tern (<i>Sterna hirundo</i>) [A193]</p> <p>Arctic Tern (<i>Sterna paradisaea</i>) [A194]</p> <p>Little Tern (<i>Sterna albifrons</i>) [A195]</p> <p>Guillemot (<i>Uria aalge</i>) [A199]</p> <p>Razorbill (<i>Alca torda</i>) [A200]</p> <p>Puffin (<i>Fratercula arctica</i>) [A204]</p>	<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the specie ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of manx shearwater at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of cormorant at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population trend is maintained or increased

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of shag at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population trend is maintained or increased ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of common scoter at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Non-breeding population size does not decline

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of black-headed gull at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Non-breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of common gull at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Non-breeding population size does not decline

Potentially relevant European sites considered in the assessment	ZoIs that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of lesser black-backed gull at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of herring gull at North-west Irish Sea SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of great black-backed gull at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Non-breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of kittiwake at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population trend is maintained or increased

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of roseate tern at North-west Irish Sea SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of common tern at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of Arctic tern at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Breeding population size does not decline Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of little tern at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Breeding population size does not decline Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of guillemot at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species ▪ Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of razorbill at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Population size does not decline ▪ Spatial distribution of suitable habitat is maintained sufficient to support the species ▪ Forage spatial distribution and available forage biomass are maintained sufficient to support the species ▪ Disturbance is maintained at levels that do not impact on the species

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of puffin at North-west Irish Sea SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Breeding population trend is maintained or increased Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA <p>To maintain the favourable conservation condition of little gull at North-west Irish Sea SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Non-breeding population size does not decline Spatial distribution of suitable habitat is maintained sufficient to support the species Forage spatial distribution and available forage biomass are maintained sufficient to support the species Disturbance is maintained at levels that do not impact on the species

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Barriers to connectivity is maintained at levels that do not impact on the species' access to the SPA or to other ecologically important sites outside the SPA
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in water quality.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked habitat is present within the groundwater catchment.		
Howth Head Coast SPA (004113) 9.9km north east both direct distance and hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Kittiwake (<i>Rissa tridactyla</i>) [A188]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked habitat is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked habitat is present within the Zol for disturbance.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked habitat is within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No. Functionally linked habitat is not present within the groundwater catchment, therefore there is no pathway to an effect.		
Baldoyle Bay SPA (004016) 10.3km north direct distance and 17.5km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadoma tadoma</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Wetland and Waterbirds [A999]	<p>To maintain the favourable conservation condition of light-bellied brent goose in Baldoyle Bay SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of shelduck in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of ringed plover in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		<p>To maintain the favourable conservation condition of golden plover in Baldoyle Bay SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of grey plover in Baldoyle Bay SPA which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of bar-tailed godwit in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> The permanent area occupied by the wetland habitat is maintained and it is not less than the area of 263ha,
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		
Irelands Eye SPA (004117) 13.1km north east direct distance and 14.2km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	land quality, Habitat degradation – spread of invasive species)		Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200]	
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		
Malahide Estuary SPA (004025)	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
14.9km north direct distance and 20.7km hydrological distance	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadoma tadoma</i>) [A048] Pintail (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition of great crested grebe in Malahide Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	To maintain the favourable conservation condition of Brent goose in Malahide Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.	Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of shelduck in Malahide Estuary SPA, by ensuring: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.	Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149]	To maintain the favourable conservation condition of pintail in Malahide Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.	Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition of goldeneye in Malahide Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.	Redshank (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition of goldeneye in Malahide Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
			Wetland and Waterbirds [A999]	<p>To maintain the favourable conservation condition of red-breasted merganser in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of oystercatcher in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of golden plover in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of grey plover in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<p>To maintain the favourable conservation condition of knot in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of dunlin in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of black-tailed godwit in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of bar-tailed godwit in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of redshank in Malahide Estuary SPA, which is defined by the following list of attributes and targets:</p>

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> Population trend is maintained or increased The distribution of the species is maintained <p>To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it which is defined by the following list of attributes and targets:</p> <p>The permanent area occupied by the wetland habitat is stable and not significantly less than the area of 765 hectares</p>
Rogerstown Estuary SPA (004015) 20.5km north direct distance and 24.7km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Greylag Goose (<i>Anser anser</i>) [A043] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadoma tadoma</i>) [A048] Shoveler (<i>Spatula clypeata</i>) [A056]	To maintain the favourable conservation condition of Greylag Goose (<i>Anser anser</i>) in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		To maintain the favourable conservation condition of Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of Shelduck (<i>Tadoma tadoma</i>) [A048] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.	Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999]	<ul style="list-style-type: none"> The distribution of the species does not decrease To maintain the favourable conservation condition of Shoveler (<i>Spatula clypeata</i>) [A056] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease To maintain the favourable conservation condition of Oystercatcher (<i>Haematopus ostralegus</i>) [A130] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease To maintain the favourable conservation condition of Ringed Plover (<i>Charadrius hiaticula</i>) [A137] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease To maintain the favourable conservation condition of Grey Plover (<i>Pluvialis squatarola</i>) [A141] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease To maintain the favourable conservation condition of Knot (<i>Calidris canutus</i>) [A143] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
				<ul style="list-style-type: none"> ▪ Long term population trend is maintained or increased ▪ The distribution of the species does not decrease <p>To maintain the favourable conservation condition of Dunlin (<i>Calidris alpina</i>) [A149] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Long term population trend is maintained or increased ▪ The distribution of the species does not decrease <p>To maintain the favourable conservation condition of Black-tailed Godwit (<i>Limosa limosa</i>) [A156] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Long term population trend is maintained or increased ▪ The distribution of the species does not decrease <p>To maintain the favourable conservation condition of Redshank (<i>Tringa totanus</i>) [A162] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Long term population trend is maintained or increased ▪ The distribution of the species does not decrease <p>To maintain the favourable conservation condition of Wetland and Waterbirds [A999] in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ The permanent area occupied by the wetland habitat is stable and not significantly less than the area of 646 hectares

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
Lambay Island SPA (004069) 21.8km north east direct distance and 23.2km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Fulmar (<i>Fulmarus glacialis</i>) [A009]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. No site-specific conservation objectives were present for Greylag Goose (<i>Anser anser</i>) for Lambay Island SPA (004069). Conservation objectives listed in Rogerstown Estuary SPA can be used as proxy.
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works	Cormorant (<i>Phalacrocorax carbo</i>) [A017]	
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.	Shag (<i>Gulosus aristotelis</i>) [A018]	
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.	Greylag Goose (<i>Anser anser</i>) [A043]	
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.	Herring Gull (<i>Larus argentatus</i>) [A184]	
			Kittiwake (<i>Rissa tridactyla</i>) [A188]	
			Guillemot (<i>Uria aalge</i>) [A199]	
			Razorbill (<i>Alca torda</i>) [A200]	
			Puffin (<i>Fratercula arctica</i>) [A204]	

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		
Skerries Islands SPA (004122) 29.2km north direct distance and 24.7km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Purple Sandpiper (<i>Calidris maritima</i>) [A148] Turnstone (<i>Arenaria interpres</i>) [A169] Herring Gull (<i>Larus argentatus</i>) [A184]	No site-specific conservation objectives, other than the general ones are present for this Special Protection Area: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. No site-specific conservation objectives were present for Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) for Skerries Islands SPA (004122). Conservation objectives listed in South Dublin Bay and River Tolka Estuary SPA can be used as proxy. No site-specific conservation objectives were present for Purple Sandpiper (<i>Calidris maritima</i>) for Skerries Islands SPA (004122). Conservation objectives listed in Rockabill SPA can be used as proxy. No site-specific conservation objectives were present for Turnstone (<i>Arenaria interpres</i>) for Skerries Islands SPA (004122). Conservation objectives listed in North Bull Island SPA can be used as proxy.
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		
Rockabill SPA (004014) 29.7km north west direct distance and 33.2km hydrological distance	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Purple Sandpiper (<i>Calidris maritima</i>) [A148] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194]	<p>To maintain the favourable conservation condition of Purple Sandpiper in Rockabill SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Long term population trend is maintained or increased The distribution of the species does not decrease <p>To maintain the favourable conservation condition of Roseate Tern in Rockabill SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> Breeding population is not declining Fledged young per breeding pair are not declining Breeding colonies is not declining Prey availability is not declining Barriers to connectivity are not increasing Disturbance correlated to human activities occur at levels that do not affect the breeding population
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in land quality, Habitat degradation – spread of invasive species)	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		<p>To maintain the favourable conservation condition of Common Tern in Rockabill SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population is not declining ▪ Fledged young per breeding pair are not declining ▪ Breeding colonies is not declining ▪ Prey availability is not declining ▪ Barriers to connectivity are not increasing ▪ Disturbance correlated to human activities occur at levels that do not affect the breeding population <p>To maintain the favourable conservation condition of Arctic Tern in Rockabill SPA, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> ▪ Breeding population is not declining ▪ Fledged young per breeding pair are not declining ▪ Breeding colonies is not declining ▪ Prey availability is not declining ▪ Barriers to connectivity are not increasing ▪ Disturbance correlated to human activities occur at levels that do not affect the breeding population
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	No, functionally linked and supporting habitat is not present within the groundwater catchment.		
Poulaphouca Reservoir SPA (004063) 23.9km south west direct distance, no hydrological connection	Permanent footprint (Habitat loss – permanent)	N/A. No permanent works are being undertaken at this stage of the Survey Works	Greylag Goose (<i>Anser anser</i>) [A043] Lesser black-backed gull (<i>Larus fuscus</i>) [A183]	No site-specific conservation objectives were present for Poulaphouca Reservoir SPA Greylag Goose (<i>Anser anser</i>) for SPA (004069). Conservation objectives listed in Rogerstown Estuary SPA can be used as proxy.
	Temporary footprint (Habitat loss – temporary; Mortality, Habitat degradation – changes in	Yes, functionally linked and supporting habitat is present within the temporary footprint of the Survey Works		

Potentially relevant European sites considered in the assessment	Zols that overlap the site or supporting / functionally linked land associated with it	Potential for LSEs?	QIs	Conservation objectives
	land quality, Habitat degradation – spread of invasive species)			No site-specific conservation objectives were present for Lesser Black-backed Gull (<i>Larus fuscus</i>) for Poulaphouca Reservoir SPA. Conservation objectives listed in North-west Irish Sea SPA can be used as proxy.
	200m from project (Habitat degradation – changes in air quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in air quality, however given the nature of the works any effects are inconsequential and therefore there is no pathway to an effect.		
	300m from project (Disturbance of species)	Yes, functionally linked and supporting habitat is present within the Zol for disturbance.		
	1km from project (Habitat degradation – changes in water quality)	Yes, functionally linked and supporting habitat is present within the Zol for habitat degradation – changes in water quality.		
	Surface water catchment connectivity (Habitat degradation – hydrological changes)	Yes, functionally linked and supporting habitat is present within the surface water catchment.		
	Groundwater catchment connectivity (Habitat degradation – hydrogeological changes)	Yes, functionally linked and supporting habitat is present within the groundwater catchment.		

5. Assessment of Likely Significant Effects (LSEs)

5.1 Assessment of LSEs Alone

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Special Areas of Conservation				
South Dublin Bay SAC (000210) Om. Within Licence Area A	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	Habitat loss - permanent	Survey Works being undertaken will not result in any permanent impacts, therefore there is no pathway to an effect.	No – No effects at all
		Habitat loss - temporary	There will be temporary habitat loss from the GI works in Licence Area A.	Yes – LSE cannot be excluded
		Habitat degradation – changes in water quality	The SAC is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SAC is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SAC is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works any effects are inconsequential and therefore there is no pathway to an effect.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrogeological changes	The SAC is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC is within the ZoI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works, no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Bray Head SAC (000714) Om. Within Licence Area B	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in water quality	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in land quality	The Survey Works in this area are within the intertidal zone and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in air quality	The SAC is within the ZoI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation –	The Survey Works in this area are within the intertidal zone and	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		hydrological changes	Irish Sea and therefore there is no pathway to an effect on the designated habitats	
		Habitat degradation – hydrogeological changes	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough Wetlands SAC (002249) Om. Within Licence Area D	Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	No temporary habitat loss will occur in this area of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat degradation – changes in water quality	The SAC is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the nature of the Survey Works in this Licence Area no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SAC is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation –	The SAC is within the Zol for habitat degradation from changes in air quality. There is	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		changes in air quality	the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC is present within the groundwater catchment and calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] and alkaline fens [7230] are characterised as groundwater dependent habitats. However, the Survey Works in this area will not impact on the groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC is within the ZoI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the ZoI for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the ZoI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Wicklow Mountains SAC (002122) 8.9km west direct distance, 11.8km upstream hydrological connection	Otter (<i>Lutra lutra</i>) [1355] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off, connected watercourses or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however there will be no impact on surface water levels as part of the Survey Works and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats used by the QI species are not dependent on groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			and there is potential for disturbance to QI species during the Survey Works. However, given the nature and location of the Survey Works within marine habitats, distance and abundance of suitable habitat closer to the SAC, impacts from disturbance are not anticipated to be significant.	
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Grey Seal (<i>Halichoerus grypus</i>) [1364]	Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
	Harbour Seal (<i>Phoca vitulina</i>) [1365] These QIs are singled out as the conservation objectives for these QIs are different from the other QIs for this SAC	Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys and ecology boat surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No – any effects are insignificant
Codling Fault Zone SAC (003015) 28.5km north east direct distance and hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale	No – any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Special Protection Areas				
South Dublin Bay and River Tolka	Light-bellied Brent goose (<i>Branta</i>	Habitat loss - permanent	No permanent works are being undertaken at this stage of the	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
Estuary SPA (004024) Om. Within Survey Works	<i>bernicle hrota</i>) [A046]		Survey Works, therefore there is no pathway to an effect	
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed plover (<i>Charadrius hiaticula</i>) [A137]	Habitat loss - temporary	The SPA is within the ZoI for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Grey plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Bar-tailed godwit (<i>Limosa lapponica</i>) [A157]	Habitat degradation – changes in water quality	The SPA is within the ZoI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Redshank (<i>Tringa totanus</i>) [A162] Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] Roseate tern (<i>Sterna dougallii</i>) [A192] Common tern (<i>Sterna hirundo</i>) [A193]	Habitat degradation – changes in land quality	The SPA is within the ZoI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Arctic tern (<i>Sterna paradisaea</i>) [A194]	Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the ZoI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –	The SPA and functionally linked habitat is within the ZoI for	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		spread of invasive species	habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	
		Disturbance of species	The SPA and functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in water quality	The SPA is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SPA is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in air quality	The SPA is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough SPA (004186) Om. Within Survey Works	Red-throated diver (<i>Gavia stellata</i>) [A001]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Greylag goose (<i>Anser anser</i>) [A043] Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Wigeon (<i>Mareca penelope</i>) [A050]	Habitat degradation –	Functionally linked and supporting habitats are within the Zol for habitat degradation	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Teal (<i>Anas crecca</i>) [A052] Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] Herring gull (<i>Larus argentatus</i>) [A184] Little tern (<i>Sterna albifrons</i>) [A195]	changes in water quality	from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA and functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Disturbance of species	The SPA and functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation –	The SPA is within the Zol for habitat degradation from changes in air quality. There is	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		changes in air quality	the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Dalkey Islands SPA (004172) – located 0.5km north east both direct distance and hydrological distance	Roseate tern (<i>Sterna dougallii</i>) [A192] Common tern (<i>Sterna hirundo</i>) [A193]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Arctic tern (<i>Sterna paradisaea</i>) [A194]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI	Yes – LSE cannot be excluded

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			species during the Survey Works.	
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Wicklow Head SPA (004127) 2.5km south east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Teal (Anas crecca) [A052]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Spatula clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No – any effects are insignificant
	Wetlands and Waterbirds [A999] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation –	Functionally linked and supporting habitat is within the	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		changes in land quality	Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
North-West Irish Sea SPA (004236) 4.8km north east both direct distance and hydrological distance	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Great Northern Diver (<i>Gavia immer</i>) [A003]			
	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Manx Shearwater (<i>Puffinus puffinus</i>) [A013]			
	Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shag (<i>Gulosus aristotelis</i>) [A018]			
	Common Scoter (<i>Melanitta nigra</i>) [A065]			
	Little Gull (<i>Larus minutus</i>) [A177]			
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Common Gull (<i>Larus canus</i>) [A182]			
	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]			
	Herring Gull (<i>Larus argentatus</i>) [A184]			
	Great Black-backed Gull (<i>Larus marinus</i>) [A187]			
	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Roseate Tern (<i>Sterna dougallii</i>) [A192]			
	Common Tern (<i>Sterna hirundo</i>) [A193]			
	Arctic Tern (<i>Sterna paradisaea</i>) [A194]			
	Little Tern (<i>Sterna albifrons</i>) [A195]	Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
	Guillemot (<i>Uria aalge</i>) [A199]			
	Razorbill (<i>Alca torda</i>) [A200]			

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Puffin (<i>Fratercula arctica</i>) [A204]	Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103]	Habitat loss – permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss – temporary	No functionally linked habitat is within the Zol for habitat loss, therefore there is no pathway to an effect	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – No effects at all
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
Howth Head Coast SPA (004113) 9.9km north east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No - No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant
Baldoyle Bay SPA (004016) 10.3km north direct distance and 17.5km hydrological distance	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048]	Habitat loss – permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss – temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Ringed Plover (<i>Charadrius hiaticula</i>) [A137]		the Survey Works no significant effect is expected.	
	Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]			
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]			
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –	Functionally linked and supporting habitat is within the	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		spread of invasive species	ZoI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	
		Disturbance of species	Functionally linked and supporting habitat is within the ZoI for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the ZoI for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the ZoI for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the ZoI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Irelands Eye SPA (004117) 13.1km north east direct distance and 14.2km hydrological distance	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –	Functionally linked and supporting habitat is present within the groundwater	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		hydrogeological changes	catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant
Malahide Estuary SPA (004025) 14.9km north direct distance and 20.7km hydrological distance	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
	Shelduck (<i>Tadorna tadorna</i>) [A048]			
	Pintail (<i>Anas acuta</i>) [A054]			
	Goldeneye (<i>Bucephala clangula</i>) [A067]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156]		Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Rogerstown Estuary SPA (004015) 20.5km north direct distance and 24.7km hydrological distance	Greylag Goose (<i>Anser anser</i>) [A043] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Shelduck (<i>Tadoma tadoma</i>) [A048]		the Survey Works no significant effect is expected.	
	Shoveler (<i>Spatula clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Redshank (<i>Tringa totanus</i>) [A162]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –	Functionally linked and supporting habitat is within the	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		spread of invasive species	Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
Lambay Island SPA (004069) 21.8km north east direct distance and 23.2km hydrological distance	Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Greylag Goose (<i>Anser anser</i>) [A043] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant
Skerries Islands SPA (004122) 29.2km north direct distance and 24.7km hydrological distance	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Purple Sandpiper (<i>Calidris maritima</i>) [A148]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation –	Functionally linked and supporting habitat is within the Zol for habitat degradation from	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Turnstone (<i>Arenaria interpres</i>) [A169] Herring Gull (<i>Larus argentatus</i>) [A184]	changes in water quality	changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Disturbance of species	Functionally linked and supporting habitat is within the ZOI for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the ZOI for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Rockabill SPA (004014) 29.7km north west direct distance and 33.2km hydrological distance	Purple Sandpiper (<i>Calidris maritima</i>) [A148] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No - No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the ZOI for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in water quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in land quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	
Poulaphouca Reservoir SPA (004063) 23.9km south west direct distance, no hydrological connection	Greylag Goose (<i>Anser anser</i>) [A043] Lesser black-backed gull (<i>Larus fuscus</i>) [A183]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			are not dependent on surface water levels and therefore there is no pathway to an effect.	
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant

Table 5.1 reports the assessment of LSEs on the QIs of the relevant European Sites.

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Special Areas of Conservation				
South Dublin Bay SAC (000210) Om. Within Licence Area A	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	Habitat loss - permanent	Survey Works being undertaken will not result in any permanent impacts, therefore there is no pathway to an effect.	No – No effects at all
		Habitat loss - temporary	There will be temporary habitat loss from the GI works in Licence Area A.	Yes – LSE cannot be excluded
		Habitat degradation – changes in water quality	The SAC is within the ZOI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SAC is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SAC is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works any effects are inconsequential and therefore there is no pathway to an effect.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works, no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Bray Head SAC (000714) Om. Within Licence Area B	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in water quality	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in land quality	The Survey Works in this area are within the intertidal zone and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in air quality	The SAC is within the ZoI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – hydrogeological changes	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough Wetlands SAC (002249)	Annual vegetation of drift lines [1210]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Om. Within Licence Area D	Perennial vegetation of stony banks [1220]	Habitat loss - temporary	No temporary habitat loss will occur in this area of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	Habitat degradation – changes in water quality	The SAC is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the nature of the Survey Works in this Licence Area no significant effect is expected.	No - any effects are insignificant
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Habitat degradation – changes in land quality	The SAC is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210]	Habitat degradation – changes in air quality	The SAC is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Alkaline fens [7230]	Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	The SAC is present within the groundwater catchment and calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] and alkaline fens [7230] are characterised as groundwater dependent habitats. However, the Survey Works in this area will not impact on the groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			Works and base level of boat traffic within the area no significant effect is expected.	
Wicklow Mountains SAC (002122) 8.9km west direct distance, 11.8km upstream hydrological connection	Otter (<i>Lutra lutra</i>) [1355] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off, connected watercourses or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however there will be no impact on surface water levels as part of the Survey Works and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats used by the QI species are not dependent on groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the nature and location of the Survey Works within marine habitats,	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			distance and abundance of suitable habitat closer to the SAC, impacts from disturbance are not anticipated to be significant.	
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Grey Seal (<i>Halichoerus grypus</i>) [1364]	Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
	Harbour Seal (<i>Phoca vitulina</i>) [1365]	Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	These QIs are singled out as the conservation objectives for these QIs are different from the other QIs for this SAC	Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys and ecology boat surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Codling Fault Zone SAC (003015) 28.5km north east direct distance and hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation –hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Special Protection Areas				
South Dublin Bay and River Tolka Estuary SPA (004024) Om. Within Survey Works	Light-bellied Brent goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed plover (<i>Charadrius hiaticula</i>) [A137] Grey plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in water quality	The SPA is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SPA is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Bar-tailed godwit (<i>Limosa lapponica</i>) [A157]	Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Redshank (<i>Tringa totanus</i>) [A162]			
	Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
	Roseate tern (<i>Sterna dougallii</i>) [A192]	Habitat degradation –hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
	Common tern (<i>Sterna hirundo</i>) [A193]			
	Arctic tern (<i>Sterna paradisaea</i>) [A194]	Habitat degradation – spread of invasive species	The SPA and functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SPA and functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in water quality	The SPA is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	The SPA is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SPA is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough SPA (004186) Om. Within Survey Works	Red-throated diver (<i>Gavia stellata</i>) [A001]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Greylag goose (<i>Anser anser</i>) [A043]	Habitat loss - temporary	The SPA is within the ZOI for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Light-bellied brent goose (<i>Branta bemicla hrota</i>) [A046]			
	Wigeon (<i>Mareca penelope</i>) [A050]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the ZOI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Teal (<i>Anas crecca</i>) [A052]		water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	
	Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]			
	Herring gull (<i>Larus argentatus</i>) [A184]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Little tern (<i>Sterna albifrons</i>) [A195]	Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA and functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SPA and functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SPA is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Dalkey Islands SPA (004172) – located 0.5km north east both direct distance and hydrological distance	Roseate tern (<i>Sterna dougallii</i>) [A192]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Common tern (<i>Sterna hirundo</i>) [A193]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Arctic tern (<i>Sterna paradisaea</i>) [A194]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Wicklow Head SPA (004127) 2.5km south east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation –hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Spatula clypeata) [A056] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143] Sanderling (Calidris alba) [A144]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Dunlin (<i>Calidris alpina</i>) [A149]		Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]			
	Curlew (<i>Numenius arquata</i>) [A160]			
	Redshank (<i>Tringa totanus</i>) [A162]	Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
	Turnstone (<i>Arenaria interpres</i>) [A169]	Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
North-West Irish Sea SPA (004236) 4.8km north east both direct distance and hydrological distance	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Great Northern Diver (<i>Gavia immer</i>) [A003]			
	Fulmar (<i>Fulmarus glacialis</i>) [A009]			
	Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Cormorant (<i>Phalacrocorax carbo</i>) [A017]			
	Shag (<i>Gulosus aristotelis</i>) [A018]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Common Scoter (<i>Melanitta nigra</i>) [A065]			
	Little Gull (<i>Larus minutus</i>) [A177]			
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Common Gull (<i>Larus canus</i>) [A182]			
	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Herring Gull (<i>Larus argentatus</i>) [A184]			
	Great Black-backed Gull (<i>Larus marinus</i>) [A187]			
	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
	Roseate Tern (<i>Sterna dougallii</i>) [A192]			

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Little Tern (<i>Sterna albifrons</i>) [A195]	Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
	Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]	Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Merlin (<i>Falco columbarius</i>) [A098]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Peregrine (<i>Falco peregrinus</i>) [A103]	Habitat loss - temporary	No functionally linked habitat is within the Zol for habitat loss, therefore there is no pathway to an effect	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – No effects at all
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
Howth Head Coast SPA (004113) 9.9km north east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – changes in water quality	Functionally linked habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	
Baldoye Bay SPA (004016) 10.3km north direct distance and 17.5km hydrological distance	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadoma tadorna</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However,	No - any effects are ecologically inconsequential

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Irelands Eye SPA (004117) 13.1km north east direct distance and 14.2km hydrological distance	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Malahide Estuary SPA (004025) 14.9km north direct distance and 20.7km hydrological distance	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Wetlands and Waterbirds [A999]	Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
		Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Rogerstown Estuary SPA (004015) 20.5km north direct distance and 24.7km hydrological distance	Greylag Goose (<i>Anser anser</i>) [A043]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shelduck (<i>Tadoma tadorna</i>) [A048]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shoveler (<i>Spatula clypeata</i>) [A056]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]			
	Knot (<i>Calidris canutus</i>) [A143]			
	Dunlin (<i>Calidris alpina</i>) [A149]			
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]			
	Redshank (<i>Tringa totanus</i>) [A162]			

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
	Wetlands and Waterbirds [A999] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
		Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Lambay Island SPA (004069) 21.8km north east direct distance and 23.2km hydrological distance	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Greylag Goose (<i>Anser anser</i>) [A043] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
	Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Skerries Islands SPA (004122)	Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
29.2km north direct distance and 24.7km hydrological distance	Shag (<i>Gulosus aristotelis</i>) [A018]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Purple Sandpiper (<i>Calidris maritima</i>) [A148]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Turnstone (<i>Arenaria interpres</i>) [A169]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Herring Gull (<i>Larus argentatus</i>) [A184]	Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable	No - any effects are insignificant

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Rockabill SPA (004014) 29.7km north west direct distance and 33.2km hydrological distance	Purple Sandpiper (<i>Calidris maritima</i>) [A148]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Roseate Tern (<i>Sterna dougallii</i>) [A192]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Common Tern (<i>Sterna hirundo</i>) [A193]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

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Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Poulaphouca Reservoir SPA (004063) 23.9km south west direct distance, no hydrological connection	Greylag Goose (<i>Anser anser</i>) [A043] Lesser black-backed gull (<i>Larus fuscus</i>) [A183]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant

Table 5.1: Assessment of LSEs on the QIs of the relevant European Sites. LSEs that cannot be excluded are shown in bold.

5.1.1 Conclusions of Alone Assessment

An examination of European sites and their QI features within the Zol of the Survey Works is presented in

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
Special Areas of Conservation				
South Dublin Bay SAC (000210) Om. Within Licence Area A	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	Habitat loss - permanent	Survey Works being undertaken will not result in any permanent impacts, therefore there is no pathway to an effect.	No – No effects at all
		Habitat loss - temporary	There will be temporary habitat loss from the GI works in Licence Area A.	Yes – LSE cannot be excluded
		Habitat degradation – changes in water quality	The SAC is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SAC is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SAC is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works any effects are inconsequential and therefore there is no pathway to an effect.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC is present within the groundwater catchment, however the habitats are not dependent on groundwater and	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			therefore there is no pathway to an effect.	
		Habitat degradation – spread of invasive species	The SAC is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works, no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Bray Head SAC (000714) Om. Within Licence Area B	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in water quality	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in land quality	The Survey Works in this area are within the intertidal zone and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – changes in air quality	The SAC is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrogeological changes	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The Survey Works in this area are within the intertidal zone and Irish Sea and therefore there is no pathway to an effect on the designated habitats.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough Wetlands SAC (002249) Om. Within Licence Area D	Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	No temporary habitat loss will occur in this area of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat degradation – changes in water quality	The SAC is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the nature of the Survey Works in this Licence Area no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SAC is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SAC is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	The SAC is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC is present within the groundwater catchment and calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] and alkaline fens [7230] are characterised as groundwater dependent habitats. However, the Survey Works in this area will not impact on the groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	The SAC is designated for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Rockabill to Dalkey Island SAC (003000) 4km east direct distance and 4.5km east hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Wicklow Mountains SAC (002122)	Otter (<i>Lutra lutra</i>) [1355]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
8.9km west direct distance, 11.8km upstream hydrological connection	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off, connected watercourses or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however there will be no impact on surface water levels as part of the Survey Works and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats used by the QI species are not dependent on groundwater levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the nature and location of the Survey Works within marine	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			habitats, distance and abundance of suitable habitat closer to the SAC, impacts from disturbance are not anticipated to be significant.	
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Lambay Island SAC (000204) 21.8km north east direct distance and 23.2km hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Grey Seal (<i>Halichoerus grypus</i>) [1364]	Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
	Harbour Seal (<i>Phoca vitulina</i>) [1365]	Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	These QIs are singled out as the conservation objectives for these QIs are different from the other QIs for this SAC	Habitat degradation – changes in land quality	The SAC and functionally linked habitat is outside the Zol for changes in land quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys and ecology boat surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Codling Fault Zone SAC (003015) 28.5km north east direct distance and hydrological distance	Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SAC.	Habitat loss - temporary	The SAC and functionally linked habitat is outside the Zol for habitat loss and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – changes in water quality	Functionally linked is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation –	The SAC and functionally linked habitat is outside the Zol for changes in land quality and	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
		changes in land quality	therefore there is no pathway to an effect.	
		Habitat degradation – changes in air quality	The SAC and functionally linked habitat is outside the Zol for changes in air quality and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrological changes	The SAC and functionally linked habitat is outside the Zol for hydrological changes and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SAC and functionally linked habitat is outside the Zol for hydrogeological changes and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Habitat degradation – spread of invasive species	The SAC and functionally linked habitat is outside the Zol for spread of invasive species and therefore there is no pathway to an effect on the designated habitats	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the bathymetric surveys.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for injury / mortality through collision with a boat or through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works and base level of boat traffic within the area no significant effect is expected.	No - any effects are insignificant
Special Protection Areas				
South Dublin Bay and River Tolka Estuary SPA (004024)	Light-bellied Brent goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
Om. Within Survey Works	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	<p>Ringed plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>Grey plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>Sanderling (<i>Calidris alba</i>) [A144]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p>	Habitat degradation – changes in water quality	The SPA is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
	<p>Bar-tailed godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Roseate tern (<i>Sterna dougallii</i>) [A192]</p>	Habitat degradation – changes in land quality	The SPA is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
	<p>Common tern (<i>Sterna hirundo</i>) [A193]</p> <p>Arctic tern (<i>Sterna paradisaea</i>) [A194]</p>	Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA and functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Disturbance of species	The SPA and functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – changes in water quality	The SPA is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality at the site through run-off or within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	The SPA is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SPA is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However,	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
The Murrough SPA (004186) Om. Within Survey Works	Red-throated diver (<i>Gavia stellata</i>) [A001]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Greylag goose (<i>Anser anser</i>) [A043] Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
	Wigeon (<i>Mareca penelope</i>) [A050] Teal (<i>Anas crecca</i>) [A052] Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] Herring gull (<i>Larus argentatus</i>) [A184] Little tern (<i>Sterna albifrons</i>) [A195]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in air quality	The SPA and functionally linked habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA and functionally linked habitat is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	The SPA and functionally linked habitat is within the ZOI for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	The SPA and functionally linked habitat is within the ZOI for mortality. There is potential for mortality through a pollution	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	The SPA is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the SPA or functionally linked habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	The SPA is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	The SPA is present within the surface water catchment, however the habitats are not dependent on surface water	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			levels and therefore there is no pathway to an effect.	
		Habitat degradation – hydrogeological changes	The SPA is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	The SPA is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Dalkey Islands SPA (004172) – located 0.5km north east both direct distance and hydrological distance	Roseate tern (<i>Sterna dougallii</i>) [A192] Common tern (<i>Sterna hirundo</i>) [A193] Arctic tern (<i>Sterna paradisaea</i>) [A194]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			event within the Irish Sea is expected.	
Wicklow Head SPA (004127) 2.5km south east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation –	Functionally linked habitat is present within the groundwater catchment, however the habitats	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		hydrogeological changes	are not dependent on groundwater and therefore there is no pathway to an effect.	
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
North Bull Island SPA (004006) 4.8km north east both direct distance and hydrological distance	Light-bellied Brent Goose (Branta bernicla hrota) [A046]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Shelduck (Tadorna tadorna) [A048] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shoveler (Spatula clypeata) [A056] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
North-West Irish Sea SPA (004236) 4.8km north east both direct distance and hydrological distance	Red-throated Diver (<i>Gavia stellata</i>) [A001] Great Northern Diver (<i>Gavia immer</i>) [A003]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Fulmar (<i>Fulmarus glacialis</i>) [A009] Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Common Scoter (<i>Melanitta nigra</i>) [A065] Little Gull (<i>Larus minutus</i>) [A177]	Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Common Gull (<i>Larus canus</i>) [A182] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Great Black-backed Gull (<i>Larus marinus</i>) [A187] Kittiwake (<i>Rissa tridactyla</i>) [A188] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
	Arctic Tern (<i>Sterna paradisaea</i>) [A194] Little Tern (<i>Sterna albifrons</i>) [A195] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Wicklow Mountains SPA (004040) 9.4km west direct distance, 11.8km upstream hydrological connection	Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No - No effects at all
		Habitat loss - temporary	No functionally linked habitat is within the Zol for habitat loss, therefore there is no pathway to an effect	No - No effects at all
		Habitat degradation - changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey	No - No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			Works no significant effect is expected.	
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works.	Yes – LSE cannot be excluded
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No - any effects are insignificant
Howth Head Coast SPA (004113) 9.9km north east both direct distance and hydrological distance	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation –	Functionally linked habitat is within the Zol for habitat degradation from changes in	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		changes in water quality	water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	
		Mortality	Functionally linked habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Baldoyle Bay SPA (004016) 10.3km north direct distance and 17.5km hydrological distance	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the ZOI for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the ZOI for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	<p>Wetlands and Waterbirds [A999]</p> <p>This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.</p>		Works no significant pollution event is expected.	
		Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Irelands Eye SPA (004117) 13.1km north east direct distance and 14.2km hydrological distance	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	
Malahide Estuary SPA (004025) 14.9km north direct distance and 20.7km hydrological distance	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shelduck (<i>Tadorna tadorna</i>) [A048]			
	Pintail (<i>Anas acuta</i>) [A054]			
	Goldeneye (<i>Bucephala clangula</i>) [A067]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Red-breasted Merganser (<i>Mergus serrator</i>) [A069]			
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]			
	Golden Plover (<i>Pluvialis apricaria</i>) [A140]			
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Knot (<i>Calidris canutus</i>) [A143]			
	Dunlin (<i>Calidris alpina</i>) [A149]			
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]			
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]			
	Redshank (<i>Tringa totanus</i>) [A162]	Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation –	Functionally linked and supporting habitat is present within the surface water	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		hydrological changes	catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event is expected.	No – any effects are insignificant
	Wetlands and Waterbirds [A999] This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss – permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss – temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Rogerstown Estuary SPA (004015) 20.5km north direct distance and 24.7km hydrological distance	Greylag Goose (<i>Anser anser</i>) [A043]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Shelduck (<i>Tadorna tadorna</i>) [A048]			
	Shoveler (<i>Spatula clypeata</i>) [A056]			
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Ringed Plover (<i>Charadrius hiaticula</i>) [A137]			
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]			
	Knot (<i>Calidris canutus</i>) [A143]			
	Dunlin (<i>Calidris alpina</i>) [A149]			
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
	Redshank (<i>Tringa totanus</i>) [A162]			
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However,	No - any effects are ecologically inconsequential

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
	Wetlands and Waterbirds [A999]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
	This QI is singled out as the conservation objectives for this QI are different from the other QIs for this SPA.	Habitat loss - temporary	Functionally linked and supporting habitat is within the ZOI for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the ZOI for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			groundwater and therefore there is no pathway to an effect.	
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
		Mortality	This QI is for habitats only, therefore there is no pathway to an effect.	No – No effects at all
Lambay Island SPA (004069) 21.8km north east direct distance and 23.2km hydrological distance	Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Greylag Goose (<i>Anser anser</i>) [A043] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitats are within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the functionally linked or supporting habitat. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the ZOI for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the ZOI for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the ZOI for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the ZOI for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			Works no significant pollution event within the Irish Sea is expected.	
Skerries Islands SPA (004122) 29.2km north direct distance and 24.7km hydrological distance	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Gulosus aristotelis</i>) [A018] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Purple Sandpiper (<i>Calidris maritima</i>) [A148] Turnstone (<i>Arenaria interpres</i>) [A169] Herring Gull (<i>Larus argentatus</i>) [A184]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No – any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No – any effects are insignificant
Rockabill SPA (004014) 29.7km north west direct distance and 33.2km hydrological distance	Purple Sandpiper (<i>Calidris maritima</i>) [A148]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No – No effects at all
	Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No – any effects are insignificant
		Habitat degradation – changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is	No – any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	
		Habitat degradation – changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	No - any effects are insignificant
Poulaphouca Reservoir SPA (004063) 23.9km south west direct distance, no hydrological connection	Greylag Goose (<i>Anser anser</i>) [A043] Lesser black-backed gull (<i>Larus fuscus</i>) [A183]	Habitat loss - permanent	No permanent works are being undertaken at this stage of the Survey Works, therefore there is no pathway to an effect	No - No effects at all
		Habitat loss - temporary	Functionally linked and supporting habitat is within the Zol for habitat loss, however given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in water quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in water quality. There is potential for a pollution event to occur from the Survey Works which could change the water quality within the Irish Sea. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are insignificant
		Habitat degradation - changes in land quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in land quality. There is the potential for changes in land quality from pollution and compaction during Survey Works. However, given the small-scale nature of the Survey	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the <u>project</u> alone?
			Works no significant effect is expected.	
		Habitat degradation – changes in air quality	Functionally linked and supporting habitat is within the Zol for habitat degradation from changes in air quality. There is the potential for changes in air quality from emissions during the Survey Works. However, given the small-scale nature of the Survey Works no significant effect is expected.	No - any effects are ecologically inconsequential
		Habitat degradation – hydrological changes	Functionally linked and supporting habitat is present within the surface water catchment, however the habitats are not dependent on surface water levels and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – hydrogeological changes	Functionally linked and supporting habitat is present within the groundwater catchment, however the habitats are not dependent on groundwater and therefore there is no pathway to an effect.	No – No effects at all
		Habitat degradation – spread of invasive species	Functionally linked and supporting habitat is within the Zol for habitat degradation from spread of invasive species. There is the potential for invasive species to be spread or introduced. However, given the small-scale nature and location of the Survey Works no effect is expected.	No – No effects at all
		Disturbance of species	Functionally linked and supporting habitat is within the Zol for disturbance and there is potential for disturbance to QI species during the Survey Works. However, given the distance and abundance of suitable habitat closer to the SPA, impacts from disturbance are not anticipated to be significant.	No - any effects are insignificant
		Mortality	Functionally linked and supporting habitat is within the Zol for mortality. There is potential for mortality through a pollution event which could affect QI species directly or indirectly through loss of prey	No - any effects are insignificant

Relevant European site (and connectivity)	Qualifying Interests	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
			species. However, given the small-scale nature of the Survey Works no significant pollution event within the Irish Sea is expected.	

Table 5.1. From this assessment, it can be concluded that the following LSEs cannot be excluded on the basis of objective information and so Appropriate Assessment is required of them.

- South Dublin Bay SAC
 - Mudflats and sandflats not covered by seawater at low tide [1140], annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], embryonic shifting dunes [2110]
 - Habitat loss – temporary from GI and intertidal cores within Licence Area A
- Rockabill to Dalkey Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- Lambay Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351], Grey Seal (*Halichoerus grypus*) [1364], Harbour Seal (*Phoca vitulina*) [1365]
 - Disturbance of species during bathymetric surveys and ecology boat surveys
- Codling Fault Zone SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- South Dublin Bay and River Tolka Estuary SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Oystercatcher (*Haematopus ostralegus*) [A130], Ringed plover (*Charadrius hiaticula*) [A137], Grey plover (*Pluvialis squatarola*) [A141], Knot (*Calidris canutus*) [A143], Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149], Bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- The Murrough SPA
 - Red-throated diver (*Gavia stellata*) [A001], Greylag goose (*Anser anser*) [A043], Light-bellied brent goose (*Branta bernicla hrota*) [A046], Wigeon (*Mareca penelope*) [A050], Teal (*Anas crecca*) [A052], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Herring gull (*Larus argentatus*) [A184], Little tern (*Sterna albifrons*) [A195]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones

- Dalkey Islands SPA
 - Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Head SPA
 - Kittiwake (*Rissa tridactyla*) [A188]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North Bull Island SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Teal (*Anas crecca*) [A052], Pintail (*Anas acuta*) [A054], Shoveler (*Spatula clypeata*) [A056], Oystercatcher (*Haematopus ostralegus*) [A130], Golden Plover (*Pluvialis apricaria*) [A140], Grey plover (*Pluvialis squatarola*) [A141], 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], Turnstone (*Arenaria interpres*) [A169], Black-headed gull (*Chroicocephalus ridibundus*) [A179]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North-West Irish Sea SPA
 - Red-throated Diver (*Gavia stellata*) [A001], Great Northern Diver (*Gavia immer*) [A003], Fulmar (*Fulmarus glacialis*) [A009], Manx Shearwater (*Puffinus puffinus*) [A013], Cormorant (*Phalacrocorax carbo*) [A017], Shag (*Gulosus aristotelis*) [A018], Common Scoter (*Melanitta nigra*) [A065], Little Gull (*Larus minutus*) [A177], Black-headed Gull (*Chroicocephalus ridibundus*) [A179], Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Herring Gull (*Larus argentatus*) [A184], Great Black-backed Gull (*Larus marinus*) [A187], Kittiwake (*Rissa tridactyla*) [A188], Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193], Arctic Tern (*Sterna paradisaea*) [A194], Little Tern (*Sterna albifrons*) [A195], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Mountains SPA
 - Merlin (*Falco columbarius*) [A098], Peregrine (*Falco peregrinus*) [A103]
 - Disturbance of species during all Survey Works within foreshore and intertidal zones

5.2 In-Combination Assessment

5.2.1 Methodology

5.2.1.1 LSEs with Potential to Act In-Combination with Other Plans and Projects

An assessment of potential in-combination effects has been carried out.

Where LSEs cannot be excluded and have been screened in for Appropriate Assessment, no in-combination assessment has been carried out for these LSEs as the Appropriate Assessment will require an in-combination assessment.

Where LSEs have been excluded on the basis that there is no pathway and therefore no effect at all or where an effect is ecologically inconsequential, no in-combination assessment has been carried out as if there is no effect at all or the effect is inconsequential, it cannot contribute to combined effects.

LSEs that have been excluded on the basis of ecological insignificance have been subject to the in-combination assessment as insignificant effects from combined plans and projects could act in combination to produce an LSE. LSEs that will be assessed are

- Habitat loss- temporary
- Habitat degradation - changes in water quality
- Habitat degradation - changes in land quality
- Disturbance of species
- Mortality

5.2.1.2 Identification of Plans and Projects with Potential to Act In-Combination

In order to take account of in-combination effects, plans and projects that are completed, approved but uncompleted, or proposed (but not yet approved) should be considered in this context (European Commission 2021a).

A search of the National Planning Application Database (NPAD) (DHLGH, accessed April 2024), Fingal and Wicklow County Council planning portals (accessed April 2024), Dublin City Council planning portal (accessed April 2024), An Bord Pleanála planning portal (accessed April 2024), foreshore licence application search (gov.ie and maritimeregulator.ie, accessed May 2024) and general web searches for major infrastructure projects and plans in the vicinity of the Survey Works in the last five years has been undertaken to identify other plans and projects that may contribute to in-combination effects.

The search identified 27 projects which were considered to have the potential for in-combination effects on habitat loss- temporary, habitat degradation – changes in water quality, disturbance of species and mortality. These are assessed in Table 5.2 below.

5.2.1.3 Assessment of In-Combination Effects

Table 5.2: Assessment of in-combination effects

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Fingal County Development Plan 2023-2029	Fingal County Council	This plan aims to support the sustainable long-term development within Fingal.	Habitat degradation – changes in water quality Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Dublin City Development Plan 2022-2028	Dublin City Council	This plan aims to support the sustainable long-term development within Dublin.	Habitat degradation – changes in water quality Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Wicklow County Development Plan	Wicklow County Council	This plan aims to support the sustainable long-term development within Wicklow	Habitat degradation – changes in water quality Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Tech Works Marine Ltd (FS007180)	-	Data buoy deployment off Dun Laoghaire, Dublin. Foreshore licence applied.	Habitat degradation – changes in water quality Mortality	Given the temporary and small-scale nature of the works, there will be no significant effect in combination with the Survey Works.	No
Mac Lir Offshore Wind Array (FS007472)	-	Site investigations for proposed offshore wind farm off Dublin, Wicklow and Wexford. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	Given the temporary and localised nature of the works, the in-combination effects are considered insignificant.	No
Mac Lir Offshore Wind Array (FS007472)	-	Site investigations and benthic surveys within a potential offshore export cable corridor. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	Given the temporary and localised nature of the works, the in-combination effects are considered insignificant.	No
Leinster Offshore Wind Array (FS007162)	-	Site investigations for proposed offshore wind farm off Dublin. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Greystones Offshore Wind Array (FS007367)	-	Site investigations for proposed offshore wind farm off Greystones. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Réalt na Mara Offshore Wind Array (FS007330)	-	Site investigations for proposed offshore wind farm off Wicklow and	Habitat loss – temporary Habitat degradation –	A Natura Impact Report has been completed and concluded that with mitigation measures	No

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
		Dublin. Foreshore licence applied.	changes in water quality Mortality	there will be no impact on European sites alone or in-combination.	
Lir Offshore Wind Array (FS007392)	-	Site investigations for proposed offshore wind farm off Counties Louth, Meath and Dublin. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Skerries Environmental Monitoring (FS005722)	-	Environmental monitoring off the coast of Skerries, County Dublin. Foreshore licence applied.	Disturbance of species	A Natura Impact Statement has been completed as part of the foreshore application and concluded that there will be no in-combination effects as part of the works	No
Irish Water Greater Dublin Drainage Outfall (FS006843)	City of Dublin	Construction of a 5.3km marine section of outfall pipe. Foreshore licence applied.	Disturbance of species Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
MaresConnect Electricity Interconnector Site Investigations (FS007635)	-	Site investigation works for an electricity interconnector between Portmaknock and Skerries, Co. Dublin. In consultation.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Statkraft North Irish Sea Array Site Investigations (FS007358)	-	Site investigations and benthic surveys within a potential offshore export cable corridor off Counties Louth, Meath and Dublin. Foreshore licence determined. Planning submission date in 2024	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Sea Stacks Offshore Wind Array (FS007134)	-	Site investigations for proposed offshore wind farm off Dublin and Wicklow. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Broadmeadow Way Greenway (FS006909)		Development of a new greenway between Malahide and Newbridge via the railway causeway across the Malahide estuary. In consultation	Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Sunrise Offshore Wind Array (FS007151)	-	Site investigations for proposed offshore wind farm off Dublin and Wicklow. In consultation.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Bray Offshore Wind Array (FS006463)	-	Construction of proposed offshore wind farm off Bray, Wicklow. Foreshore licence applied.	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Microsoft Ireland Operations (LIC230016)	-	Site investigations for a proposed subsea fibre optic cable from Portmarnock, Dublin to Abergele, Wales	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Microsoft Ireland Operations (LIC230018)	-	Site investigations for a proposed subsea fibre optic cable from Dublin Port to Angelsey, Wales	Habitat loss – temporary Habitat degradation – changes in water quality Mortality	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Poolbeg GIS Substation	Dublin City Council	A proposed electricity transmission development that primarily comprises the replacement and/or enhancement, and expansion of existing substation infrastructure. Includes associated GI and survey works.	Habitat degradation – changes in water quality Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
CP1021	Meath County Council, Fingal County Council and Dublin City Council	An extension to the East Meath to North Dublin electricity network. Includes associated GI and survey works.	Habitat degradation – changes in water quality Disturbance of species	A Natura Impact Report has been completed and concluded that with mitigation measures there will be no impact on European sites alone or in-combination.	No
Kish Bank Offshore Windfarm (FS006462)	Dun Laoghaire-Rathdown County Council	500MW offshore wind farm 11km off Dublin coast. Includes associated survey works. currently in consultation.	Habitat loss – temporary Habitat degradation – changes in water quality Disturbance of species Mortality	Given the early stage of the application, this will have no effect in-combination with the Survey Works	No
Codling Banks Array (FS006460)	Wicklow County Council	1.3GW offshore wind farm 13km off Wicklow coast. Includes associated survey works. Currently in consultation	Habitat degradation – changes in water quality Disturbance of species Mortality	Given the early stage of the application, this will have no effect in-combination with the Survey Works	No
Dublin BusConnects 313509	Dublin City Council	BusConnects Belfield/Blackrock to City Centre Core Bus Corridor Scheme 50m south of Survey Works area at closes point. Approved with conditions 27/03/24	Habitat degradation – changes in water quality	An NIS completed as part of the application states that with mitigation measures there will be no alone or in-combination effect on any European sites.	No
Seagull Cottage, Clonmannon 2360091	Wicklow County Council	The construction of a storey-and-a-half extension to the side and alterations	Habitat degradation – changes in water quality	Given the small scale of the development and location beyond the railway, there will	No

Name and Application Reference	Planning Authority	Description	Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
		to existing cottage including: the removal of pitched roofs to porches and replacement with single mono-pitch roof, new entrance to rear with new mono-pitch canopy, alterations to existing elevations, new Velux window to northern roof, new lime render; and all associated site works 100m west of Survey Works area. Conditionally granted 29/11/2023		be no significant effect on water quality in combination with the Survey Works.	

5.2.2 Conclusions on In-Combination Effects

It can be concluded on the basis of objective information from the assessment in Table 5.2 that there is no potential for in-combination effects of the Survey Works and other plans or projects to undermine the integrity of any European sites.

6. Screening Statement and Conclusion

The Survey Works will occur within South Dublin Bay SAC, The Murrough SAC, South Dublin Bay and Tolka Estuary SPA and The Murrough SPA. The Survey Works are not directly connected with or necessary to the conservation management of any these European sites.

This AA Screening Report presents the objective scientific information required to inform a robust and complete examination of the potential impacts of the Survey Works on European sites.

The conclusion of the Screening for AA is that, in the absence of mitigation measures, the following LSE to undermine the conservation objectives of the following European sites cannot be excluded:

- South Dublin Bay SAC
 - Mudflats and sandflats not covered by seawater at low tide [1140], annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310], embryonic shifting dunes [2110]
 - Habitat loss – temporary from GI and intertidal cores within Licence Area A
- Rockabill to Dalkey Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- Lambay Island SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351], Grey Seal (*Halichoerus grypus*) [1364], Harbour Seal (*Phoca vitulina*) [1365]
 - Disturbance of species during bathymetric surveys and ecology boat surveys
- Codling Fault Zone SAC
 - Harbour Porpoise (*Phocoena phocoena*) [1351]
 - Disturbance of species during bathymetric surveys
- South Dublin Bay and River Tolka Estuary SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Oystercatcher (*Haematopus ostralegus*) [A130], Ringed plover (*Charadrius hiaticula*) [A137], Grey plover (*Pluvialis squatarola*) [A141], Knot (*Calidris canutus*) [A143], Sanderling (*Calidris alba*) [A144], Dunlin (*Calidris alpina*) [A149], Bar-tailed godwit (*Limosa lapponica*) [A157], Redshank (*Tringa totanus*) [A162], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- The Murrough SPA
 - Red-throated diver (*Gavia stellata*) [A001], Greylag goose (*Anser anser*) [A043], Light-bellied brent goose (*Branta bernicla hrota*) [A046], Wigeon (*Mareca penelope*) [A050], Teal (*Anas crecca*) [A052], Black-headed gull (*Chroicocephalus ridibundus*) [A179], Herring gull (*Larus argentatus*) [A184], Little tern (*Sterna albifrons*) [A195]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones

- Dalkey Islands SPA
 - Roseate tern (*Sterna dougallii*) [A192], Common tern (*Sterna hirundo*) [A193], Arctic tern (*Sterna paradisaea*) [A194]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Head SPA
 - Kittiwake (*Rissa tridactyla*) [A188]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North Bull Island SPA
 - Light-bellied Brent goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Teal (*Anas crecca*) [A052], Pintail (*Anas acuta*) [A054], Shoveler (*Spatula clypeata*) [A056], Oystercatcher (*Haematopus ostralegus*) [A130], Golden Plover (*Pluvialis apricaria*) [A140], Grey plover (*Pluvialis squatarola*) [A141], 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], Turnstone (*Arenaria interpres*) [A169], Black-headed gull (*Chroicocephalus ridibundus*) [A179]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- North-West Irish Sea SPA
 - Red-throated Diver (*Gavia stellata*) [A001], Great Northern Diver (*Gavia immer*) [A003], Fulmar (*Fulmarus glacialis*) [A009], Manx Shearwater (*Puffinus puffinus*) [A013], Cormorant (*Phalacrocorax carbo*) [A017], Shag (*Gulosus aristotelis*) [A018], Common Scoter (*Melanitta nigra*) [A065], Little Gull (*Larus minutus*) [A177], Black-headed Gull (*Chroicocephalus ridibundus*) [A179], Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Herring Gull (*Larus argentatus*) [A184], Great Black-backed Gull (*Larus marinus*) [A187], Kittiwake (*Rissa tridactyla*) [A188], Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193], Arctic Tern (*Sterna paradisaea*) [A194], Little Tern (*Sterna albifrons*) [A195], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204]
 - Disturbance of species during all Survey Works within intertidal and subtidal zones
- Wicklow Mountains SPA
 - Merlin (*Falco columbarius*) [A098], Peregrine (*Falco peregrinus*) [A103]
 - Disturbance of species during all Survey Works within foreshore and intertidal zones

It is therefore required that the Survey Works are progressed to Stage 2 Appropriate Assessment, which will comprise a detailed assessment of the potential for adverse effects on the integrity of European sites based on these potential LSEs.

Detailed information to inform the AA for the Survey Works will be presented in a Natura Impact Statement which will be submitted at planning to enable the Competent Authority to undertake an AA in respect of the Survey Works.

7. References

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2021) *Good Practice Guidance for Habitats and Species*. Version 3. Chartered Institute of Ecology and Environmental Management, Winchester.

Countryside Council for Wales (2009) *Pen Llŷn a'r Sarnau /Lleyn Peninsula and the Sarnau European Marine Site and SAC*. Version 2. Countryside Council for Wales, Cardiff

Department of Environment, Heritage and Local Government (DoEHLG) (2010). *Appropriate Assessment of Plans and Proposed Schemes in Ireland*. Guidance for Planning Authorities.

Department of Housing, Local Government and Heritage (DHLGH) (Accessed April 2024). National Planning Application Map Database (NPAD)

European Commission (2018). Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

Environmental Protection Agency (EPA) (2021). River Waterbody Status results recorded in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003). Available at <https://gis.epa.ie/EPAMaps/>.

European Commission (EC) (2000). *Communication from the Commission on the Precautionary Principle*. Office for Official Publications of the European Communities, Luxembourg.

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 Commission.

European Commission (EC) (2018). Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

European Commission (EC) (2021a). Assessment of Plans and Proposed Schemes Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

European Commission (EC) (2021b). Guidance document on the strict protection of animal species of Community interest under the Habitats Directive.

ESRI (Accessed February 2023). *World Imagery*. Accessed online at <https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9#!>

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

Google Earth (Accessed April 2024). *Google Earth*. Available online at: <https://earth.google.com/web/@0,-4.3176001,0a,22251752.77375655d,35y,0h,0t,0r/data=OgMKATA>

Gov.ie Foreshore Licence search (Accessed May 2024). Available online at: <https://www.gov.ie/en/foreshore-notices/>

Maritime Regulator Ireland application search (Accessed May 2024). Available online at: <https://www.maritimeregulator.ie/applications/>

National Biodiversity Data Centre (NBDC) (accessed April 2024). *Biodiversity Maps*. Available online at: <https://maps.biodiversityireland.ie/Map>

National Parks and Wildlife Service (NPWS) (2012a). *Marine Natura Impact Statements in Irish Special Areas of Conservation* – A Working Document. National Parks & Wildlife Service of the Department of Arts, Heritage & the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013a) *Conservation Objectives: South Dublin Bay SAC 000210*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

National Parks and Wildlife Service (NPWS) (2013b) *Conservation Objectives: Wicklow Reef SAC 002274*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013c) *Conservation Objectives: Rockabill to Dalkey Island SAC 003000*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013d) *Conservation Objectives: North Dublin Bay SAC 000206*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013e) *Conservation Objectives: Lambay Island SAC 000204*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013f) *Conservation Objectives: Baldoyle Bay SPA 004016*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013g) *Conservation Objectives: Malahide Estuary SPA 004025*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013h) *Conservation Objectives: Rogerstown Estuary SPA 004015*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013i) *Conservation Objectives: Rockabill SPA 004014*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013j) *Site Synopsis: Ballyman Glen SAC 000713*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013k) *Site Synopsis: Glen of the Downs SAC 000719*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013l) *Site Synopsis: Carriggower Bog SAC 000716*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013m) *Site Synopsis: Deputy's Pass Nature Reserve SAC 000717*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013n) *Site Synopsis: Howth Head SAC 000202*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013o) *Site Synopsis: Baldoyle Bay SAC 000199*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2013p) *Site Synopsis: Rogerstown Estuary SAC 000208*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2014) *Site Synopsis: Ireland's Eye SAC 002193*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2015a) *Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2015b) *Conservation Objectives: North Bull Island SPA 004006*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2017a) *Conservation Objectives: Bray Head SAC 000714*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

National Parks and Wildlife Service (NPWS) (2017b) *Conservation Objectives: Magherabeg Dunes SAC 001766*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

National Parks and Wildlife Service (NPWS) (2017c) *Conservation Objectives: Wicklow Mountains SAC 002122*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

National Parks and Wildlife Service (NPWS) (2017d) *Site Synopsis Malahide Estuary SAC 000205*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

National Parks and Wildlife Service (NPWS) (2019a). *The Status of EU Protected Habitats and Species in Ireland*. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2019b). *The Status of EU Protected Habitats and Species in Ireland*. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2019c). *The Status of EU Protected Habitats and Species in Ireland*. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

National Parks and Wildlife Service (NPWS) (2019d) *Site Synopsis: Knocksink Wood SAC 000725*. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

National Parks and Wildlife Service (NPWS) (2021) *Conservation Objectives: The Murrough Wetlands SAC 002249*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022a) *Conservation objectives for The Murrough SPA [004186]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022b) *Conservation objectives for Dalkey Islands SPA [004172]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022c) *Conservation objectives for Wicklow Head SPA [004127]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022d) *Conservation objectives for Wicklow Mountains SPA [004040]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022e) *Conservation objectives for Howth Head Coast SPA [004113]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022f) *Conservation objectives for Ireland's Eye SPA* [004117]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022g) *Conservation objectives for Lambay Island SPA* [004069]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022h) *Conservation objectives for Skerries Islands SPA* [004122]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2022i) *Conservation objectives for Poulaphouca Reservoir SPA* [004063]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2023a). *Special Areas of Conservation*. SAC_ITM_2023_07. 2593190e-9a49-43a4-b4a8-9467257099fa. Downloaded from: <http://catalogue.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/2593190e-9a49-43a4-b4a8-9467257099fa>

National Parks and Wildlife Service (NPWS) (2023b). *Special Protection Area*. SPA_ITM_2023. 2593190e-4f748046-6513-4a78-b5ca-39e2e5a8629f. Downloaded from: <http://catalogue.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/4f748046-6513-4a78-b5ca-39e2e5a8629f>

National Parks and Wildlife Service (NPWS) (2023c) *Conservation Objectives: Codling Fault Zone SAC* 003015. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Parks and Wildlife Service (NPWS) (2023d) *Conservation Objectives: North-west Irish Sea SPA* 004236. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Roads Authority (NRA) (2010). *Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*.

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

Transport Infrastructure Ireland (TII) (2020a) *The Management of Invasive Alien Plant Species on National Roads – Standard*.

Transport Infrastructure Ireland (TII) (2020b) *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance*.

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 Number 724.

Appendix A. Figures

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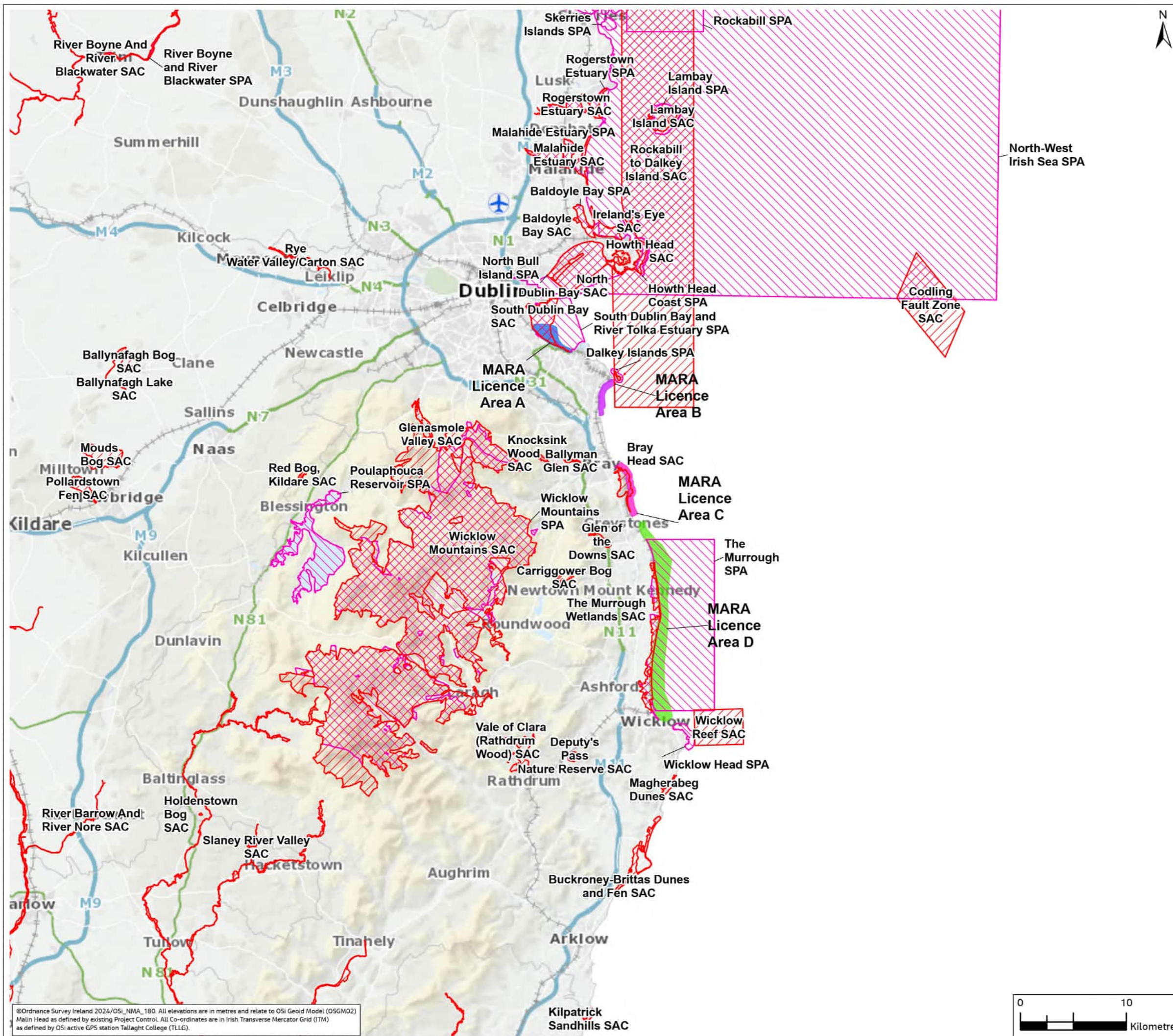


FIGURE 2

Legend

MARA Licence Area

- Area A
- Area B
- Area C
- Area D

- Special Protection Areas
- Special Area of Conservation



PD1	May 2024	For Review and Comment	SMD	SB	RH	KD
Rev	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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Project



Drawing Title

Site location plan with SPAs & SACs

Drawing Status

For Review and Comment

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Jacobs No.

D3658301

Client No.

Drawing No.

7694-XX-P2-DWG-EV-JAC-0001

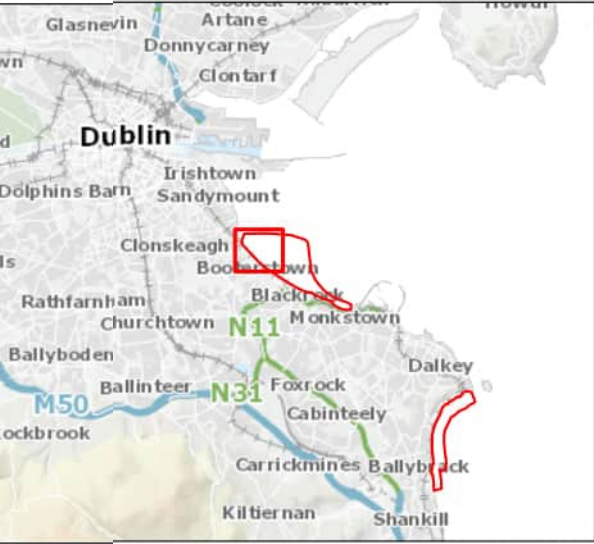
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as defined by OSI active GPS station Tallaght College (TLLG).*

FIGURE 2

- Legend**
- MARA Licence Area**
- Area A
 - High Water Mark
- Geophysical and GeoTechnical Investigations Within MARA Licence Area**
- Slit Trench
 - Windowless Sampler
 - Geophysical Survey Area



P01	May 2024	For Review and Comment	SMD	SB	RH	DK
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Project	

Drawing Title
Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 1 of 3)

Drawing Status	For Review and Comment	
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Client No.		
Drawing No.	7694-XX-P2-DWG-EV-JAC-0002	

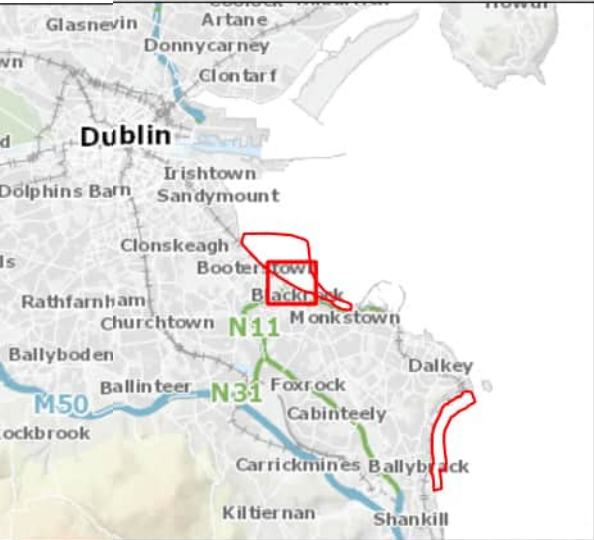
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FIGURE 2

- Legend**
- MARA Licence Area**
- Area A
 - High Water Mark
- Geophysical and GeoTechnical Investigations Within MARA Licence Area**
- Slit Trench
 - Windowless Sampler
 - DP
 - Geophysical Survey Area



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Drawing Title
Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 2 of 3)

Drawing Status	For Review and Comment	
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FIGURE 2

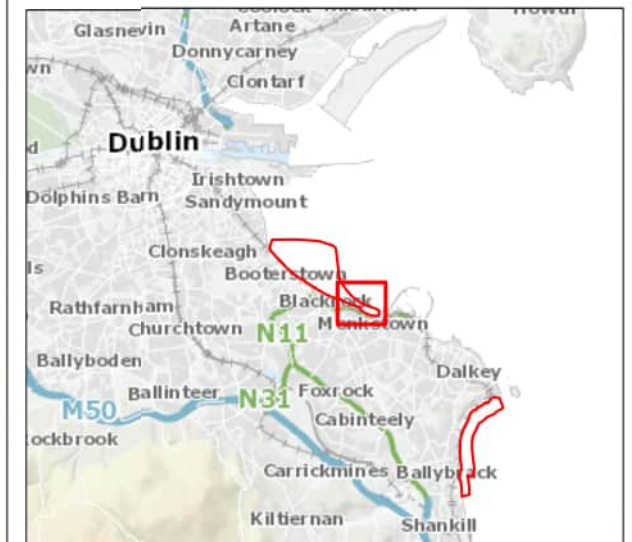
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MARA Licence Area

- Area A
- High Water Mark

Geophysical and GeoTechnical Investigations Within MARA Licence Area

- Trial Pit
- Sediment Sampling
- Geophysical Survey Area



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Drawing Title
Site Location Plan with GeoTechnical Investigation Locations
& Geophysical Survey Areas
(Sheet 3 of 3)

Drawing Status
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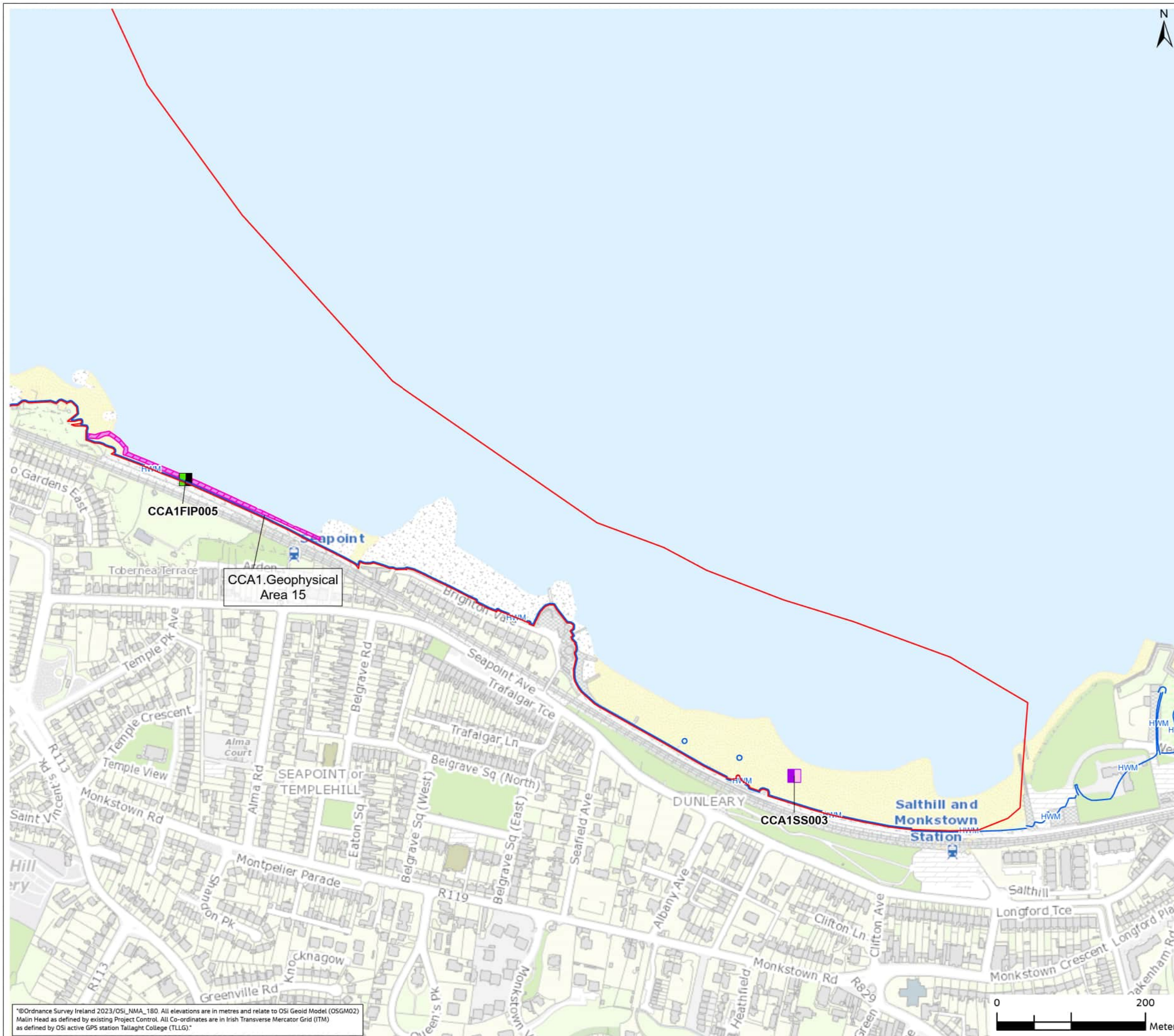
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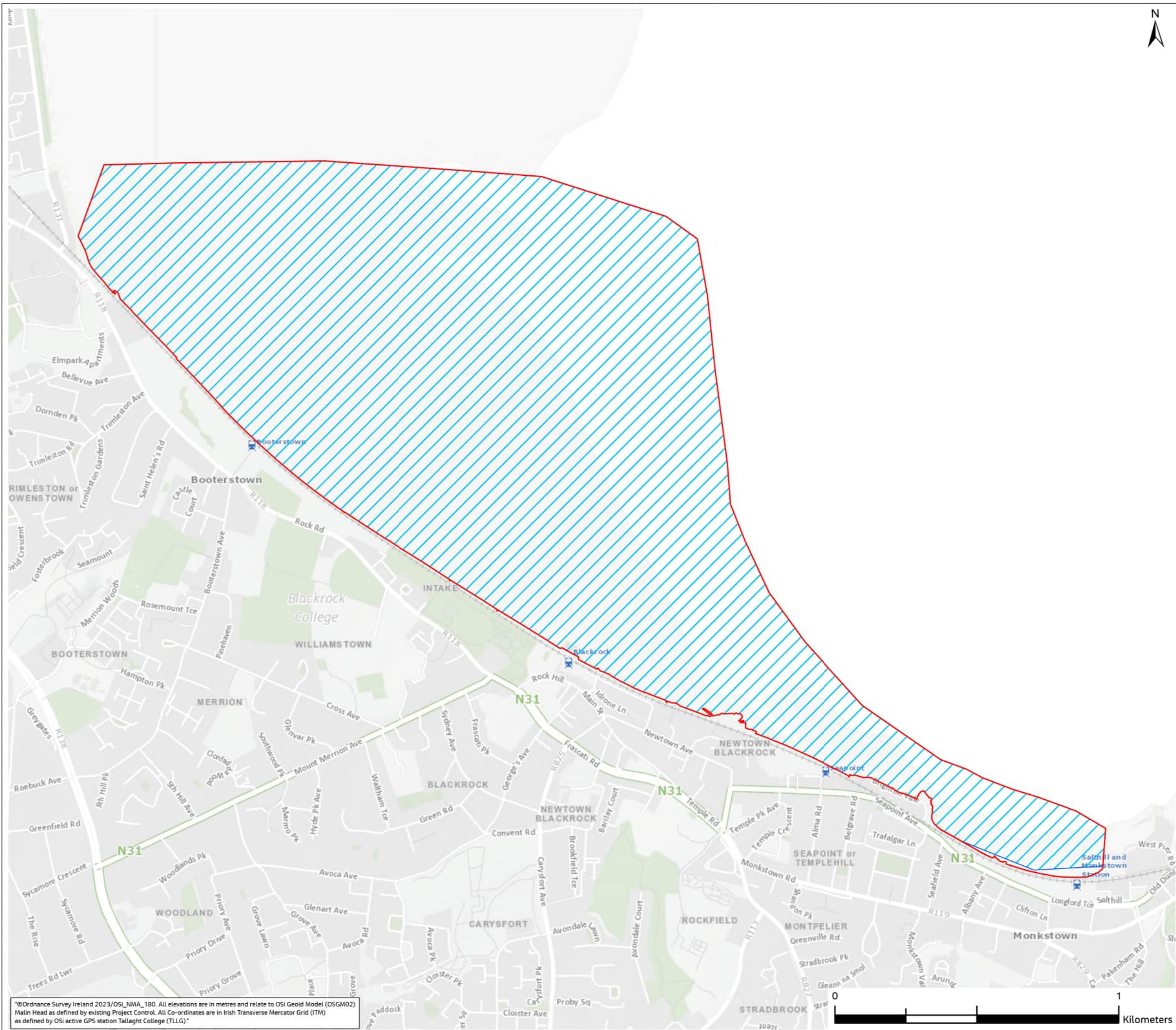
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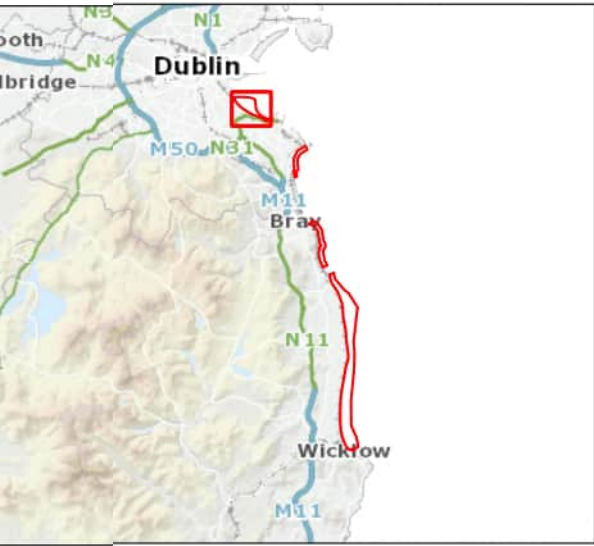
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FIGURE 3

- Legend**
- MARA Licence Area**
- Area A
 - Proposed Offshore Survey AOI



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Project
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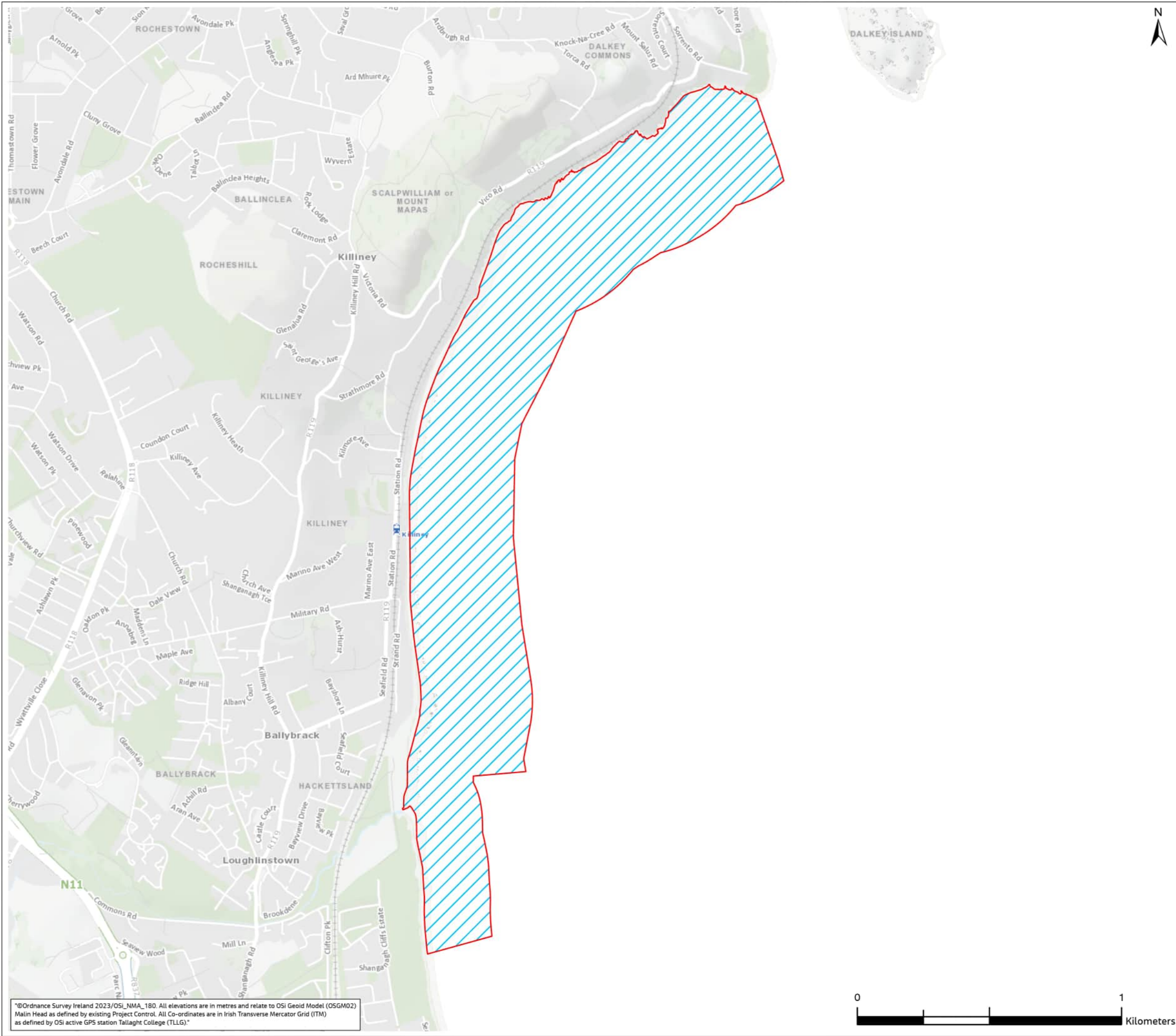
Drawing Title
Site Location Plan with
Proposed Offshore Survey AOI
(Sheet 1 of 4)

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FIGURE 3

- Legend**
- MARA Licence Area**
- Area B
 - Proposed Offshore Survey AOI



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Iarnród Éireann Infrastructure

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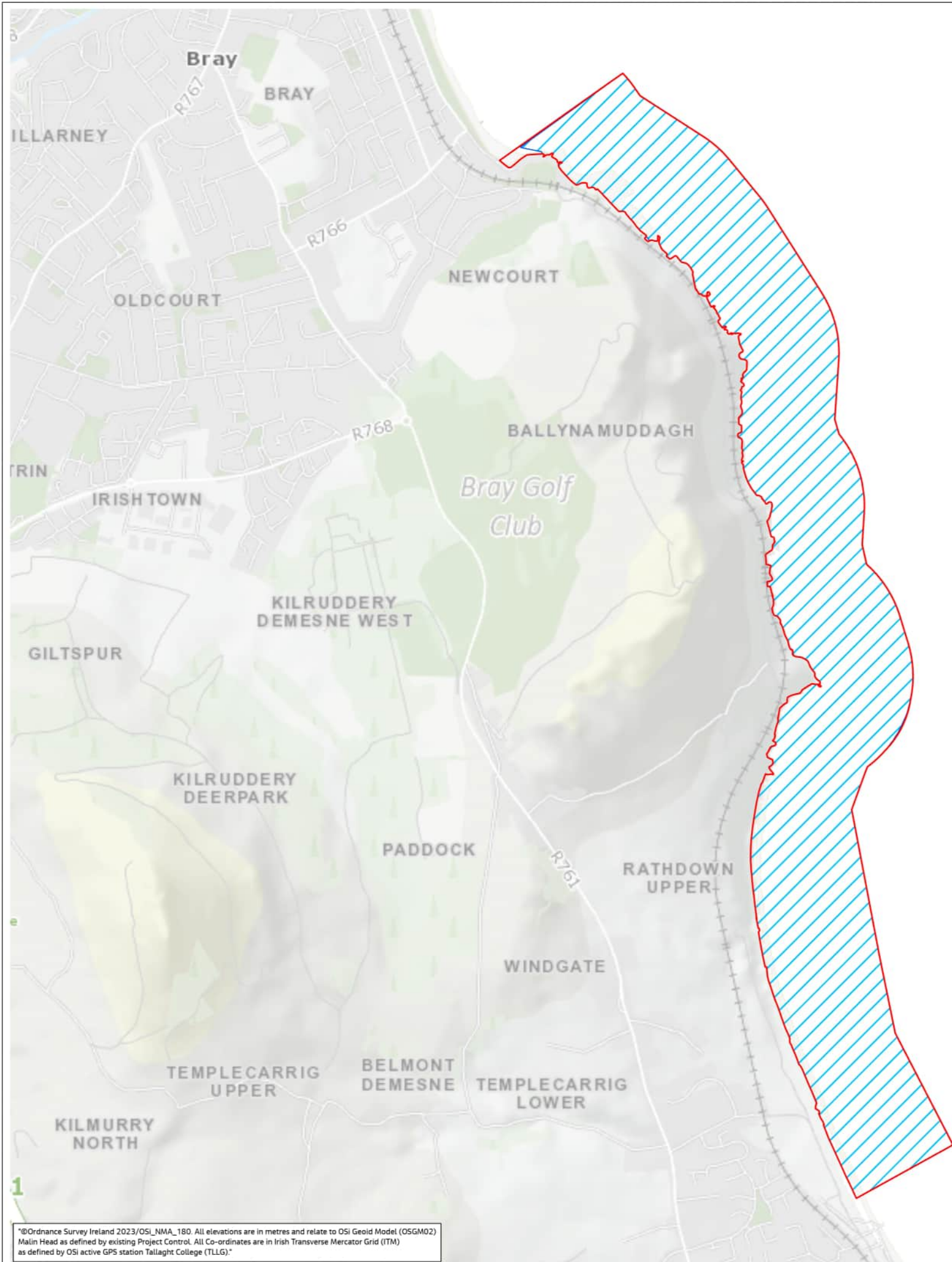
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Site Location Plan with
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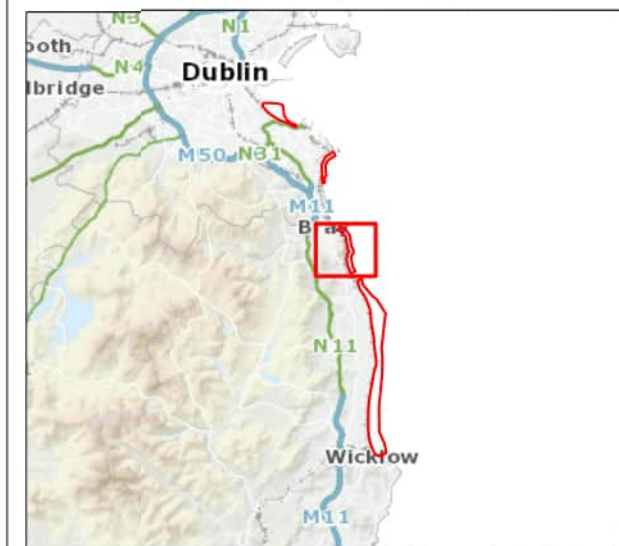


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FIGURE 3

- Legend**
- MARA Licence Area**
- Area C
 - Proposed Offshore Survey AOI



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Site Location Plan with
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(Sheet 3 of 4)

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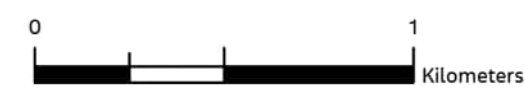
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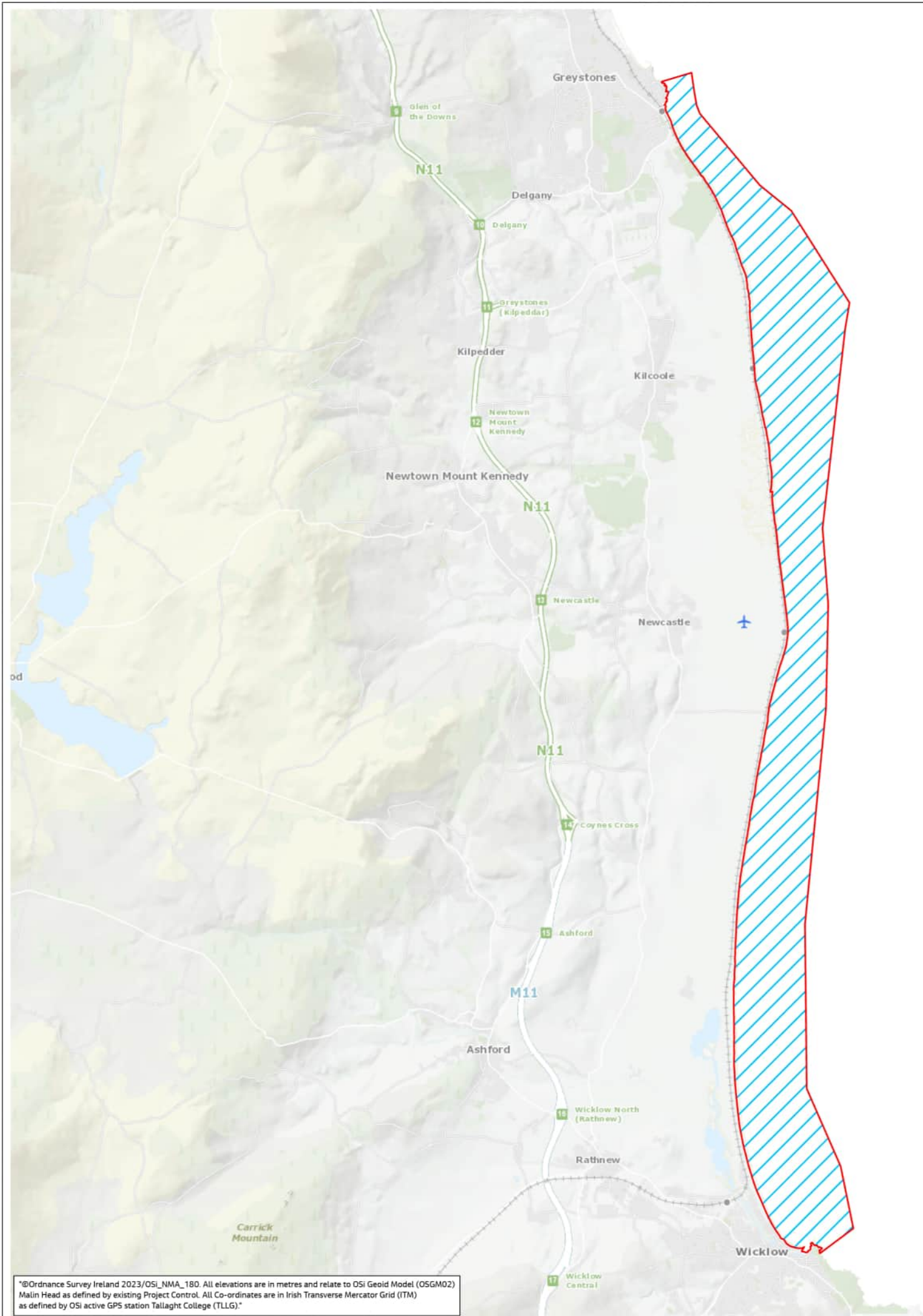
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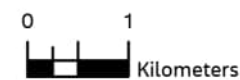
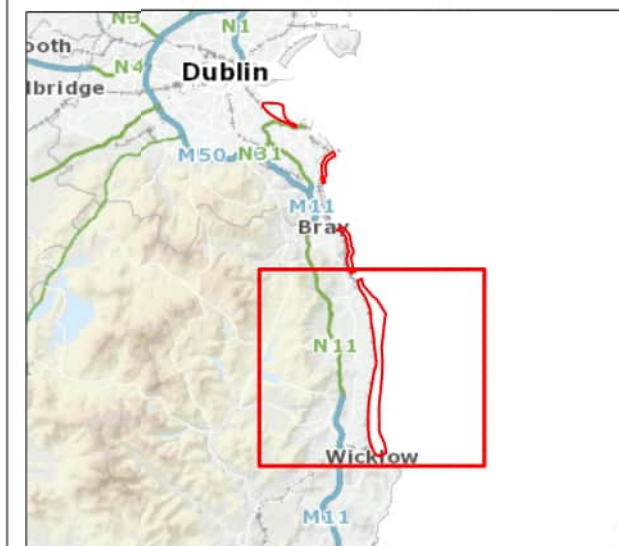


FIGURE 3

- Legend**
- MARA Licence Area**
- Area D
 - Proposed Offshore Survey AOI



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Drawing Title

Site Location Plan with
Proposed Offshore Survey AOI
(Sheet 4 of 4)

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Appendix B. Borehole Locations

Not Used

DRAFT

Appendix C. NBDC Desk-Based Review Results

Table 1: Results of the NBDC desk-based review of Annex I bird species. Species in bold indicate a QI of a European Site within the Zol. A dash (-) has been used to signify where no data was returned.

	Designation	Licence area	Number of records	Most recent record
Arctic tern (<i>Sterna paradisaea</i>)	EU Birds Directive: Annex I species	Licence Area A	8	2017
		Licence Area B	-	-
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	2	2010
Atlantic puffin (<i>Fratercula arctica</i>)	EU Birds Directive: Annex I species	Licence Area A	-	-
		Licence Area B	-	-
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	3	2010
Bar-tailed godwit (<i>Limosa lapponica</i>)	EU Birds Directive: Annex I species	Licence Area A	14	2018
		Licence Area B	2	2016
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	9	2022
Common tern (<i>Sterna hirundo</i>)	EU Birds Directive: Annex I species	Licence Area A	11	2019
		Licence Area B	3	2023
	Protected Species: Wildlife Acts	Licence Area C	1	2011
		Licence Area D	7	2010
Dunlin (<i>Calidris alpina</i>)	EU Birds Directive: Annex I species	Licence Area A	23	2012
		Licence Area B	4	2012
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	44	2023
European golden plover (<i>Pluvialis apricaria</i>)	EU Birds Directive: Annex I, Annex II & Annex III species	Licence Area A	3	2011
		Licence Area B	23	2012
	Protected Species: Wildlife Acts	Licence Area C	1	2010
		Licence Area D	16	2023
Great northern Diver (<i>Gavia immer</i>)	EU Birds Directive: Annex I species	Licence Area A	2	2012
		Licence Area B	3	2012
	Protected Species: Wildlife Acts	Licence Area C	1	2011
		Licence Area D	5	2011
Little gull (<i>Larus minutus</i>)	EU Birds Directive: Annex I species	Licence Area A	7	2017
		Licence Area B	5	2019
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	13	2016

Little tern (<i>Sternula albifrons</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	50	2022
Merlin (<i>Falco columbarius</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	7	2011
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	7	2023
Peregrine falcon (<i>Falco peregrinus</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	18	2022
		Licence Area B	1	2010
		Licence Area C	7	2016
		Licence Area D	14	2023
Red-throated diver (<i>Gavia stellata</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	12	2016
		Licence Area B	50	2016
		Licence Area C	-	-
		Licence Area D	40	2023
Roseate tern (<i>Sterna dougallii</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	7	2012
		Licence Area B	1	2016
		Licence Area C	-	-
		Licence Area D	1	2020
Common Goldeneye (<i>Bucephala clangula</i>)	EU Birds Directive: Annex II species Protected Species: Wildlife Acts	Licence Area A	1	2011
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	6	2011
Eurasian curlew (<i>Numenius arquata</i>)	EU Birds Directive: Annex II species Protected Species: Wildlife Acts	Licence Area A	27	2023
		Licence Area B	10	2012
		Licence Area C	1	2011
		Licence Area D	86	2023
Red-breasted merganser (<i>Mergus serrator</i>)	EU Habitats Directive: Annex II species Protected Species: Wildlife Acts	Licence Area A	6	2016
		Licence Area B	3	2016
		Licence Area C	-	-
		Licence Area D	5	2011
Common scoter (<i>Melanitta nigra</i>)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Licence Area A	1	2011
		Licence Area B	-	-
		Licence Area C	1	2017
		Licence Area D	12	2023
Eurasian teal (<i>Anas crecca</i>)		Licence Area A	20	2012
		Licence Area B	1	2012

Eurasian wigeon (Mareca penelope)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	99	2023
		Licence Area A	3	2018
		Licence Area B	-	-
Greylag goose (Anser anser)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	79	2023
		Licence Area A	-	-
		Licence Area B	-	-
Northern pintail (Anas acuta)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	11	2017
		Licence Area A	-	-
		Licence Area B	-	-
Northern shoveler (Spatula clypeata)	EU Birds Directive: Annex II & Annex III species Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	10	2011
		Licence Area A	-	-
		Licence Area B	-	-
Black-headed gull (Chroicocephalus ridibundus)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	67	2023
		Licence Area A	50	2023
		Licence Area B	9	2023
Black-legged kittiwake (Rissa tridactyla)	Protected Species: Wildlife Acts	Licence Area C	2	2017
		Licence Area D	83	2023
		Licence Area A	49	2023
		Licence Area B	21	2017
Black-tailed godwit (Limosa limosa)	Protected Species: Wildlife Acts	Licence Area C	22	2017
		Licence Area D	44	2016
		Licence Area A	33	2019
		Licence Area B	1	2010
Brent goose (Branta bernicle)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	44	2023
		Licence Area A	23	2019
		Licence Area B	5	2017
		Licence Area C	1	2011
		Licence Area D	41	2023
		Licence Area A	41	2023

Common guillemot (<i>Uria aalge</i>)	Protected Species: Wildlife Acts	Licence Area B	11	2016
		Licence Area C	19	2017
		Licence Area D	49	2023
Common Gull (<i>Larus canus</i>)	Protected Species: Wildlife Act	Licence Area A	16	2023
		Licence Area B	2	2012
		Licence Area C	2	2020
		Licence Area D	22	2016
Common redshank (<i>Tringa totanus</i>)	Protected Species: Wildlife Acts	Licence Area A	44	2019
		Licence Area B	32	2017
		Licence Area C	-	-
		Licence Area D	54	2023
Common shelduck (<i>Tadorna tadorna</i>)	Protected Species: Wildlife Acts	Licence Area A	9	2019
		Licence Area B	11	2016
		Licence Area C	-	-
		Licence Area D	70	2023
Eurasian oystercatcher (<i>Haematopus ostralegus</i>)	Protected Species: Wildlife Acts	Licence Area A	36	2023
		Licence Area B	5	2017
		Licence Area C	1	2011
		Licence Area D	72	2023
European shag (<i>Golamula aristotelis</i>)	Protected Species: Wildlife Acts	Licence Area A	54	2023
		Licence Area B	26	2020
		Licence Area C	22	2020
		Licence Area D	53	2023
Great black-backed gull (<i>Laurs marinus</i>)	Protected Species: Wildlife Acts	Licence Area A	39	2023
		Licence Area B	8	2023
		Licence Area C	4	2023
		Licence Area D	59	2023
Great cormorant (<i>Phalacrocorax carbo</i>)	Protected Species: Wildlife Acts	Licence Area A	57	2023
		Licence Area B	27	2020
		Licence Area C	22	2023
		Licence Area D	76	2023
Great crested grebe (<i>Podiceps cristatus</i>)	Protected Species: Wildlife Acts	Licence Area A	19	2016
		Licence Area B	5	2017
		Licence Area C	1	2011
		Licence Area D	3	2011
Grey plover (<i>Pluvialis squatarola</i>)	Protected Species: Wildlife Acts	Licence Area A	1	2010
		Licence Area B	6	2012
		Licence Area C	-	-

Herring gull (<i>Larus argentatus</i>)	Protected Species: Wildlife Acts	Licence Area D	8	2023
		Licence Area A	71	2023
		Licence Area B	9	2016
		Licence Area C	13	2017
Lesser black-backed gull (<i>Larus fuscus</i>)	Protected Species: Wildlife Acts	Licence Area D	87	2023
		Licence Area A	14	2020
		Licence Area B	5	2017
		Licence Area C	1	2011
Manx Shearwater (<i>Puffinus puffinus</i>)	Protected Species: Wildlife Acts	Licence Area D	15	2012
		Licence Area A	1	1991
		Licence Area B	-	-
		Licence Area C	-	-
Razorbill (<i>Alca torda</i>)	Protected Species: Wildlife Acts	Licence Area D	23	2020
		Licence Area A	29	2022
		Licence Area B	7	2016
		Licence Area C	13	2017
Red knot (<i>Calidris canutus</i>)	Protected Species: Wildlife Acts	Licence Area D	58	2023
		Licence Area A	16	2012
		Licence Area B	-	-
		Licence Area C	-	-
Ringed plover (<i>Charadrius hiaticula</i>)	Protected Species: Wildlife Acts	Licence Area D	10	2023
		Licence Area A	13	2012
		Licence Area B	6	2020
		Licence Area C	-	-
Northern fulmar (<i>Fulmarus glacialis</i>)	N/A	Licence Area D	71	2023
		Licence Area A	15	2016
		Licence Area B	31	2012
		Licence Area C	1	2017
Purple sandpiper (<i>Calidris maritima</i>)	N/A	Licence Area D	25	2020
		Licence Area A	10	2023
		Licence Area B	-	-
		Licence Area C	1	2011
Ruddy Turnstone (<i>Arenaria interpres</i>)	N/A	Licence Area D	3	2011
		Licence Area A	33	2023
		Licence Area B	11	2023
		Licence Area C	-	-
	N/A	Licence Area D	25	2023
	N/A	Licence Area A	-	-

Sanderling (<i>Calidris alba</i>)		Licence Area B	1	2011
		Licence Area C	-	-
		Licence Area D	6	2010
Bewick's swan (<i>Cygnus columbianus</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	7	2012
Black tern (<i>Chlidonias niger</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	1	2009
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	1	2001
Black-throated diver (<i>Gavia arctica</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	1	2014
Common kingfisher (<i>Alcedo atthis</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	7	2017
		Licence Area B	76	2017
		Licence Area C	1	2023
		Licence Area D	16	2023
Cory's shearwater (<i>Calonectris diomedea</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	1	2007
Eurasian Marsh Harrier (<i>Circus aeruginosus</i>)	EU Birds Directive: Annex I Species Protected Species: Wildlife Act	Licence Area A	-	-
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	4	2019
European storm-petrel (<i>Hydrobates pelagicus</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	-	-
		Licence Area B	21	2012
		Licence Area C	-	-
		Licence Area D	1	2009
Hen harrier (<i>Circus cyaneus</i>)	EU Birds Directive: Annex I species Protected Species: Wildlife Acts	Licence Area A	4	2011
		Licence Area B	-	-
		Licence Area C	-	-
		Licence Area D	12	2021
Little egret (<i>Egretta garzetta</i>)	EU Birds Directive: Annex I species	Licence Area A	49	2022
		Licence Area B	1	2002

Mediterranean gull (<i>Larus melanocephalus</i>)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	101	2023
	EU Birds Directive: Annex I species	Licence Area A	13	2015
		Licence Area B	7	2012
Red-necked phalarope (<i>Phalaropus lobatus</i>)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	12	2012
	EU Birds Directive: Annex I species	Licence Area A	1	1957
		Licence Area B	17	2011
Ruff (<i>Philomachus pugnax</i>)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	1	2006
	EU Birds Directive: Annex I species	Licence Area A	-	-
		Licence Area B	-	-
Sandwich tern (<i>Sterna sandvicensis</i>)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	3	2011
	EU Birds Directive: Annex I species	Licence Area A	9	2022
		Licence Area B	65	2012
Short-eared owl (<i>Asio flammeus</i>)	Protected Species: Wildlife Acts	Licence Area C	3	2016
		Licence Area D	54	2023
	EU Birds Directive: Annex I species	Licence Area A	2	2020
		Licence Area B	-	-
Whooper swan (<i>Cygnus cygnus</i>)	Protected Species: Wildlife Acts	Licence Area C	1	2020
		Licence Area D	7	2011
	EU Birds Directive: Annex I species	Licence Area A	2	2011
		Licence Area B	-	-
Greater white-fronted goose (<i>Anser albifrons</i>)	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	32	2023
	EU Birds Directive: Annex I, Annex II & Annex III species	Licence Area A	-	-
		Licence Area B	-	-
	Protected Species: Wildlife Acts	Licence Area C	-	-
		Licence Area D	3	2011

Appendix D. Wintering Bird Survey Results

October wintering bird survey results. Species in bold indicate a QI of a European Site within the Zol

Licence Area	Vantage Point	Species	Species Code	Peak Count
CCA1	VP1	Bar-tailed Godwit	BA	250
CCA1	VP1	Brent goose	BG	6
CCA1	VP1	Black-headed gull	BH	420
CCA1	VP1	Black-tailed godwit	BW	14
CCA1	VP1	Common gull	CM	25
CCA1	VP1	Curlew	CU	38
CCA1	VP1	Dunlin	DN	200
CCA1	VP1	Little egret	ET	2
CCA1	VP1	Great black-backed gull	GB	1
CCA1	VP1	Greenshank	GK	8
CCA1	VP1	Golden plover	GP	50
CCA1	VP1	Grey plover	GV	1
CCA1	VP1	Herring gull	HG	85
CCA1	VP1	Knot	KN	60
CCA1	VP1	Lesser black-backed gull	LB	1
CCA1	VP1	Mediterranean gull	MU	60
CCA1	VP1	Oystercatcher	OC	750
CCA1	VP1	Redshank	RK	171
CCA1	VP1	Teal	T.	70
CCA1	VP1	Wigeon	WN	7
CCA1	VP2	Black-headed gull	BH	150
CCA1	VP2	Black-tailed godwit	BW	12
CCA1	VP2	Cormorant	CA	10
CCA1	VP2	Great black-backed gull	GB	2
CCA1	VP2	Great crested grebe	GG	5
CCA1	VP2	Herring gull	HG	150
CCA1	VP2	Knot	KN	3
CCA1	VP2	Oystercatcher	OC	200
CCA1	VP2	Redshank	RK	18
CCA1	VP2	Ringed plover	RP	35
CCA1	VP2	Turnstone	TT	6
CCA2-3	VP1	Black-headed gull	BH	1

CCA2-3	VP1	Cormorant	CA	2
CCA2-3	VP1	Herring gull	HG	5
CCA2-3	VP1	Rock Pipit	RC	2
CCA2-3	VP1	Shag	SA	10
CCA5	VP1	Black-headed gull	BH	12
CCA5	VP1	Cormorant	CA	3
CCA5	VP1	Great black-backed gull	GB	3
CCA5	VP1	Herring gull	HG	10
CCA5	VP1	Lesser black-backed gull	LB	1
CCA5	VP1	Mute swan	MS	2
CCA5	VP1	Shag	SA	2
CCA6.1	VP1	Black-headed gull	BH	8
CCA6.1	VP1	Cormorant	CA	2
CCA6.1	VP1	Great black-backed gull	GB	1
CCA6.1	VP1	Gannet	GX	1
CCA6.1	VP1	Herring gull	HG	3
CCA6.1	VP1	Kestrel	K.	1
CCA6.1	VP1	Lesser black-backed gull	LB	3
CCA6.1	VP1	Oystercatcher	OC	40
CCA6.1	VP1	Razorbill	RA	1
CCA6.1	VP1	Red-throated diver	RH	2
CCA6.1	VP1	Shag	SA	3
CCA6.1	VP1	Turnstone	TT	1
CCA6.1	VP2	Black-headed gull	BH	8
CCA6.1	VP2	Cormorant	CA	4
CCA6.1	VP2	Curlew	CU	72
CCA6.1	VP2	Common scoter	CX	1
CCA6.1	VP2	Great black-backed gull	GB	1
CCA6.1	VP2	Herring gull	HG	8
CCA6.1	VP2	Merlin	ML	1
CCA6.1	VP2	Oystercatcher	OC	1
CCA6.1	VP2	Razorbill	RA	3
CCA6.1	VP2	Red-throated diver	RH	2
CCA6.1	VP2	Ringed plover	RP	24

CCA6.1	VP2	Shag	SA	1
CCA6.1	VP3	Black-headed gull	BH	4
CCA6.1	VP3	Cormorant	CA	6
CCA6.1	VP3	Curlew	CU	8
CCA6.1	VP3	Common scoter	CX	1
CCA6.1	VP3	Little egret	ET	3
CCA6.1	VP3	Great black-backed gull	GB	1
CCA6.1	VP3	Golden plover	GP	3
CCA6.1	VP3	Guillemot	GU	1
CCA6.1	VP3	Grey plover	GV	1
CCA6.1	VP3	Gannet	GX	2
CCA6.1	VP3	Grey heron	H.	2
CCA6.1	VP3	Herring gull	HG	30
CCA6.1	VP3	Lapwing	L.	102
CCA6.1	VP3	Little gull	LU	3
CCA6.1	VP3	Mallard	MA	3
CCA6.1	VP3	Mute swan	MS	1
CCA6.1	VP3	Oystercatcher	OC	32
CCA6.1	VP3	Peregrine	PE	1
CCA6.1	VP3	Razorbill	RA	2
CCA6.1	VP3	Red-throated diver	RH	3
CCA6.1	VP3	Redshank	RK	7
CCA6.1	VP3	Shag	SA	4
CCA6.1	VP3	Shelduck	SU	1
CCA6.1	VP3	Shoveler	SV	7
CCA6.1	VP3	Teal	T.	1
CCA6.1	VP3	Wigeon	WN	182
CCA6.1	VP3	Whooper swan	WS	8
CCA6.1	VP4	Black-headed gull	BH	13
CCA6.1	VP4	Black-tailed godwit	BW	2
CCA6.1	VP4	Cormorant	CA	7
CCA6.1	VP4	Common gull	CM	3
CCA6.1	VP4	Curlew	CU	10
CCA6.1	VP4	Dunlin	DN	6
CCA6.1	VP4	Little egret	ET	1
CCA6.1	VP4	Great black-backed gull	GB	2

CCA6.1	VP4	Greenshank	GK	2
CCA6.1	VP4	Grey plover	GV	2
CCA6.1	VP4	Grey heron	H.	2
CCA6.1	VP4	Herring gull	HG	7
CCA6.1	VP4	Little grebe	LG	4
CCA6.1	VP4	Little gull	LU	2
CCA6.1	VP4	Mallard	MA	3
CCA6.1	VP4	Meadow pipit	MP	4
CCA6.1	VP4	Mute swan	MS	2
CCA6.1	VP4	Oystercatcher	OC	9
CCA6.1	VP4	Razorbill	RA	10
CCA6.1	VP4	Red-throated diver	RH	3
CCA6.1	VP4	Redshank	RK	1
CCA6.1	VP4	Ringed plover	RP	1
CCA6.1	VP4	Shag	SA	4
CCA6.1	VP4	Shoveler	SV	2
CCA6.1	VP4	Teal	T.	10
CCA6.1	VP4	Turnstone	TT	3
CCA6.1	VP4	Black Guillemot	TY	1
CCA6.1	VP4	Wigeon	WN	18
CCA6.1	VP4	Whooper swan	WS	6
CCA6.1	VP5	Black-headed gull	BH	27
CCA6.1	VP5	Cormorant	CA	5
CCA6.1	VP5	Common gull	CM	3
CCA6.1	VP5	Dunlin	DN	4
CCA6.1	VP5	Great black-backed gull	GB	1
CCA6.1	VP5	Greenshank	GK	1
CCA6.1	VP5	Goldfinch	GO	100+
CCA6.1	VP5	Golden plover	GP	16
CCA6.1	VP5	Guillemot	GU	1
CCA6.1	VP5	Gannet	GX	1
CCA6.1	VP5	Herring gull	HG	6
CCA6.1	VP5	Long-tailed tit	LT	10
CCA6.1	VP5	Merlin	ML	1
CCA6.1	VP5	Mediterranean gull	MU	1
CCA6.1	VP5	Oystercatcher	OC	1
CCA6.1	VP5	Razorbill	RA	17

CCA6.1	VP5	Red-throated diver	RH	4
CCA6.1	VP5	Shag	SA	4
CCA6.1	VP5	Starling	SG	50
CCA6.1	VP5	Teal	T.	2
CCA6.1	VP5	Sandwich Tern	TE	2
CCA6.2	VP1	Black-headed gull	BH	21
CCA6.2	VP1	Cormorant	CA	5
CCA6.2	VP1	Curlew	CU	6
CCA6.2	VP1	Dunlin	DN	15
CCA6.2	VP1	Great black-backed gull	GB	3
CCA6.2	VP1	Gannet	GX	2
CCA6.2	VP1	Herring gull	HG	16
CCA6.2	VP1	Shelduck	SU	5
CCA6.2	VP2	Black-headed gull	BH	235
CCA6.2	VP2	Cormorant	CA	1
CCA6.2	VP2	Common gull	CM	2
CCA6.2	VP2	Common scoter	CX	6
CCA6.2	VP2	Great black-backed gull	GB	2
CCA6.2	VP2	Guillemot	GU	1
CCA6.2	VP2	Gannet	GX	2
CCA6.2	VP2	Grey heron	H.	1
CCA6.2	VP2	Herring gull	HG	2
CCA6.2	VP2	Lesser black-backed gull	LB	1
CCA6.2	VP2	Linnet	LI	43
CCA6.2	VP2	Mallard	MA	2
CCA6.2	VP2	Mute swan	MS	2
CCA6.2	VP2	Mediterranean gull	MU	1
CCA6.2	VP2	Oystercatcher	OC	2
CCA6.2	VP2	Razorbill	RA	3
CCA6.2	VP2	Red-throated diver	RH	1
CCA6.2	VP2	Shag	SA	3
CCA6.2	VP4	Black-headed gull	BH	3
CCA6.2	VP4	Gannet	GX	1
CCA6.2	VP4	Meadow Pipit	MP	6
CCA6.2	VP4	Stonechat	SC	2

November wintering bird survey results. Species in bold indicate a QI of a European Site within the Zol

Survey area	Vantage Point	Species	Species code	Peak Count
CCA1	VP1	Brent goose	BG	71
CCA1	VP1	Black-headed gull	BH	175
CCA1	VP1	Black-tailed godwit	BW	10
CCA1	VP1	Cormorant	CA	1
CCA1	VP1	Curlew	CU	50
CCA1	VP1	Dunlin	DN	300
CCA1	VP1	Little egret	ET	5
CCA1	VP1	Great black-backed gull	GB	6
CCA1	VP1	Great crested grebe	GG	36
CCA1	VP1	Greenshank	GK	15
CCA1	VP1	Grey heron	H.	1
CCA1	VP1	Herring gull	HG	250
CCA1	VP1	Knot	KN	2
CCA1	VP1	Lapwing	L.	12
CCA1	VP1	Oystercatcher	OC	600
CCA1	VP1	Redshank	RK	207
CCA1	VP1	Ringed plover	RP	8
CCA1	VP1	Shelduck	SU	3
CCA1	VP1	Teal	T.	73
CCA1	VP2	Black-headed gull	BH	60
CCA1	VP2	Cormorant	CA	1
CCA1	VP2	Dunlin	DN	500
CCA1	VP2	Little egret	ET	1
CCA1	VP2	Great black-backed gull	GB	1
CCA1	VP2	Great crested grebe	GG	3
CCA1	VP2	Herring gull	HG	30
CCA1	VP2	Ringed plover	RP	30
CCA1	VP2	Mediterranean gull	MU	40
CCA1	VP2	Oystercatcher	OC	1
CCA1	VP2	Red-throated diver	RH	1
CCA1	VP2	Red-breasted merganser	RM	1
CCA1	VP2	Shag	SA	1
CCA1	VP2	Turnstone	TT	25

CCA2-3	VP1	Black-headed gull	BH	56
CCA2-3	VP1	Cormorant	CA	1
CCA2-3	VP1	Great black-backed gull	GB	2
CCA2-3	VP1	Grey wagtail	GL	1
CCA2-3	VP1	Guillemot	GU	1
CCA2-3	VP1	Grey heron	H.	1
CCA2-3	VP1	Herring gull	HG	50
CCA2-3	VP1	Shag	SA	3
CCA2-3	VP1	Sparrowhawk	SH	1
CCA5	VP1	Black-headed gull	BH	8
CCA5	VP1	Black-throated diver	BV	1
CCA5	VP1	Cormorant	CA	110
CCA5	VP1	Common gull	CM	13
CCA5	VP1	Great black-backed gull	GB	3
CCA5	VP1	Greylag goose	GJ	5
CCA5	VP1	Gannet	GX	1
CCA5	VP1	Herring gull	HG	90
CCA5	VP1	Razorbill	RA	1
CCA5	VP1	Red-throated diver	RH	5
CCA5	VP1	Shag	SA	8
CCA5	VP1	Whooper swan	WS	2
CCA6.1	VP1	Brent goose	BG	2
CCA6.1	VP1	Black-headed gull	BH	71
CCA6.1	VP1	Black-throated diver	BV	3
CCA6.1	VP1	Cormorant	CA	36
CCA6.1	VP1	Common gull	CM	19
CCA6.1	VP1	Common scoter	CX	25
CCA6.1	VP1	Dunlin	DN	4
CCA6.1	VP1	Great black-backed gull	GB	3
CCA6.1	VP1	Herring gull	HG	46
CCA6.1	VP1	Kestrel	K.	1
CCA6.1	VP1	Mediterranean gull	MU	1
CCA6.1	VP1	Oystercatcher	OC	103
CCA6.1	VP1	Razorbill	RA	7
CCA6.1	VP1	Red-throated diver	RH	167
CCA6.1	VP1	Ringed plover	RP	2
CCA6.1	VP1	Shag	SA	4
CCA6.1	VP1	Black Guillemot	TY	1

CCA6.1	VP1	White-fronted goose	WG	1
CCA6.1	VP2	Black-headed gull	BH	30
CCA6.1	VP2	Black-throated diver	BV	1
CCA6.1	VP2	Cormorant	CA	3
CCA6.1	VP2	Dunlin	DN	3
CCA6.1	VP2	Great black-backed gull	GB	2
CCA6.1	VP2	Grey heron	H.	3
CCA6.1	VP2	Herring gull	HG	6
CCA6.1	VP2	Lapwing	L.	100
CCA6.1	VP2	Mallard	MA	6
CCA6.1	VP2	Oystercatcher	OC	60
CCA6.1	VP2	Peregrine	PE	1
CCA6.1	VP2	Red-throated diver	RH	29
CCA6.1	VP2	Shag	SA	4
CCA6.1	VP2	Starling	SG	300
CCA6.1	VP2	Shelduck	SU	1
CCA6.1	VP3	Black-headed gull	BH	60
CCA6.1	VP3	Cormorant	CA	6
CCA6.1	VP3	Curlew	CU	100
CCA6.1	VP3	Dunlin	DN	3
CCA6.1	VP3	Little egret	ET	3
CCA6.1	VP3	Gadwall	GA	1
CCA6.1	VP3	Great black-backed gull	GB	2
CCA6.1	VP3	Greylag goose	GJ	27
CCA6.1	VP3	Greenshank	GK	2
CCA6.1	VP3	Grey plover	GV	2
CCA6.1	VP3	Gannet	GX	3
CCA6.1	VP3	Herring gull	HG	2
CCA6.1	VP3	Lapwing	L.	108
CCA6.1	VP3	Little grebe	LG	1
CCA6.1	VP3	Mute swan	MS	2
CCA6.1	VP3	Pink-footed goose	PG	2
CCA6.1	VP3	Red-throated diver	RH	13
CCA6.1	VP3	Redshank	RK	24
CCA6.1	VP3	Shag	SA	1
CCA6.1	VP3	Starling	SG	20
CCA6.1	VP3	Shelduck	SU	1
CCA6.1	VP3	Shoveler	SV	8

CCA6.1	VP3	Teal	T.	10
CCA6.1	VP3	Wigeon	WN	298
CCA6.1	VP3	Whooper swan	WS	37
CCA6.1	VP4	Brent goose	BG	7
CCA6.1	VP4	Black-headed gull	BH	121
CCA6.1	VP4	Cormorant	CA	5
CCA6.1	VP4	Common gull	CM	1
CCA6.1	VP4	Curlew	CU	2
CCA6.1	VP4	Dunlin	DN	1
CCA6.1	VP4	Little egret	ET	2
CCA6.1	VP4	Great black-backed gull	GB	4
CCA6.1	VP4	Greenshank	GK	2
CCA6.1	VP4	Grey heron	H.	3
CCA6.1	VP4	Herring gull	HG	10
CCA6.1	VP4	Little grebe	LG	1
CCA6.1	VP4	Moorhen	MH	1
CCA6.1	VP4	Mediterranean gull	MU	2
CCA6.1	VP4	Oystercatcher	OC	2
CCA6.1	VP4	Razorbill	RA	6
CCA6.1	VP4	Red-throated diver	RH	22
CCA6.1	VP4	Ringed plover	RP	6
CCA6.1	VP4	Shag	SA	6
CCA6.1	VP4	Shelduck	SU	2
CCA6.1	VP4	Teal	T.	6
CCA6.1	VP4	Wigeon	WN	178
CCA6.1	VP5	Black-headed gull	BH	1
CCA6.1	VP5	Cormorant	CA	3
CCA6.1	VP5	Common gull	CM	4
CCA6.1	VP5	Curlew	CU	2
CCA6.1	VP5	Common scoter	CX	3
CCA6.1	VP5	Little egret	ET	1
CCA6.1	VP5	Great black-backed gull	GB	1
CCA6.1	VP5	Guillemot	GU	1
CCA6.1	VP5	Grey heron	H.	1
CCA6.1	VP5	Herring gull	HG	30
CCA6.1	VP5	Kestrel	K.	1
CCA6.1	VP5	Red kite	KT	1
CCA6.1	VP5	Linnet	LI	7

CCA6.1	VP5	Little gull	LU	1
CCA6.1	VP5	Mallard	MA	2
CCA6.1	VP5	Oystercatcher	OC	3
CCA6.1	VP5	Razorbill	RA	7
CCA6.1	VP5	Red-throated diver	RH	16
CCA6.1	VP5	Redshank	RK	3
CCA6.1	VP5	Shag	SA	11
CCA6.1	VP5	Shelduck	SV	10
CCA6.1	VP5	Teal	T.	235
CCA6.1	VP5	Wigeon	WN	137
CCA6.2	VP1	Black-headed gull	BH	20
CCA6.2	VP1	Black-tailed godwit	BW	4
CCA6.2	VP1	Cormorant	CA	1
CCA6.2	VP1	Curlew	CU	15
CCA6.2	VP1	Dunlin	DN	1
CCA6.2	VP1	Great black-backed gull	GB	2
CCA6.2	VP1	Guillemot	GU	1
CCA6.2	VP1	Gannet	GX	1
CCA6.2	VP1	Herring gull	HG	3
CCA6.2	VP1	Red kite	KT	1
CCA6.2	VP1	Lapwing	L.	5
CCA6.2	VP1	Oystercatcher	OC	3
CCA6.2	VP1	Razorbill	RA	1
CCA6.2	VP1	Red-throated diver	RH	40
CCA6.2	VP1	Redshank	RK	1
CCA6.2	VP1	Shag	SA	3
CCA6.2	VP1	Shelduck	SU	3
CCA6.2	VP1	Shoveler	SV	25
CCA6.2	VP1	Teal	T.	30
CCA6.2	VP1	Wigeon	WN	90
CCA6.2	VP2	Black-headed gull	BH	20
CCA6.2	VP2	Black-tailed godwit	BW	40
CCA6.2	VP2	Cormorant	CA	1
CCA6.2	VP2	Little egret	ET	2
CCA6.2	VP2	Great black-backed gull	GB	4
CCA6.2	VP2	Great crested grebe	GG	1
CCA6.2	VP2	Herring gull	HG	5
CCA6.2	VP2	Linnet	LI	20

CCA6.2	VP2	Mallard	MA	3
CCA6.2	VP2	Great northern diver	ND	1
CCA6.2	VP2	Oystercatcher	OC	3
CCA6.2	VP2	Red-throated diver	RH	3
CCA6.2	VP2	Shag	SA	2
CCA6.2	VP2	Turnstone	TT	4
CCA6.2	VP3	Black-headed gull	BH	18
CCA6.2	VP3	Curlew	CU	100
CCA6.2	VP3	Great black-backed gull	GB	2
CCA6.2	VP3	Greylag goose	GJ	41
CCA6.2	VP3	Greenshank	GK	1
CCA6.2	VP3	Gannet	GX	1
CCA6.2	VP3	Lapwing	L.	60
CCA6.2	VP3	Little grebe	LG	2
CCA6.2	VP3	Red-throated diver	RH	6
CCA6.2	VP3	Redshank	RK	2
CCA6.2	VP3	Shag	SA	1
CCA6.2	VP3	Starling	SG	40
CCA6.2	VP3	Shelduck	SV	3
CCA6.2	VP3	Teal	T.	8
CCA6.2	VP3	Wigeon	WN	298
CCA6.2	VP3	Whooper swan	WS	23
CCA6.2	VP4	Black-headed gull	BH	200
CCA6.2	VP4	Black-tailed godwit	BW	20
CCA6.2	VP4	Cormorant	CA	1
CCA6.2	VP4	Common gull	CM	20
CCA6.2	VP4	Curlew	CU	10
CCA6.2	VP4	Dunlin	DN	8
CCA6.2	VP4	Little egret	ET	3
CCA6.2	VP4	Great black-backed gull	GB	5
CCA6.2	VP4	Greenshank	GK	2
CCA6.2	VP4	Golden plover	GP	60
CCA6.2	VP4	Herring gull	HG	30
CCA6.2	VP4	Kingfisher	KF	1
CCA6.2	VP4	Red kite	KT	2
CCA6.2	VP4	Little grebe	LG	30
CCA6.2	VP4	Mute swan	MS	27
CCA6.2	VP4	Mediterranean gull	MU	2

CCA6.2	VP4	Great northern diver	ND	1
CCA6.2	VP4	Oystercatcher	OC	1
CCA6.2	VP4	Redshank	RK	50
CCA6.2	VP4	Sparrowhawk	SH	1
CCA6.2	VP4	Sand Martin	SM	3
CCA6.2	VP4	Shoveler	SV	8
CCA6.2	VP4	Water rail	WA	1
CCA6.2	VP4	Wigeon	WN	26

December wintering bird survey results. Species in bold indicate a QI of a European Site within the ZOI

Survey area	Vantage Point	Species	Species code	Peak Count
CCA1	VP1	Bar-tailed godwit	BA	260
CCA1	VP1	Brent goose	BG	274
CCA1	VP1	Black-headed gull	BH	600
CCA1	VP1	Black-tailed godwit	BW	87
CCA1	VP1	Common Gull	CM	50
CCA1	VP1	Curlew	CU	99
CCA1	VP1	Dunlin	DN	650
CCA1	VP1	Little egret	ET	3
CCA1	VP1	Great black-backed gull	GB	3
CCA1	VP1	Great crested grebe	GG	9
CCA1	VP1	Greenshank	GK	9
CCA1	VP1	Golden plover	GP	1
CCA1	VP1	Grey heron	H.	5
CCA1	VP1	Herring gull	HG	100
CCA1	VP1	Knot	KN	150
CCA1	VP1	Lesser black-backed gull	LB	1
CCA1	VP1	Mallard	MA	20
CCA1	VP1	Moorhen	MH	3
CCA1	VP1	Oystercatcher	OC	1400
CCA1	VP1	Redshank	RK	335
CCA1	VP1	Ringed plover	RP	120
CCA1	VP1	Sanderling	SS	13
CCA1	VP1	Shelduck	SU	1
CCA1	VP1	Teal	T.	100
CCA1	VP1	Turnstone	TT	8

CCA1	VP2	Arctic skua	AC	4
CCA1	VP2	Black-headed gull	BH	30
CCA1	VP2	Dunlin	DN	2
CCA1	VP2	Little egret	ET	1
CCA1	VP2	Great black-backed gull	GB	1
CCA1	VP2	Herring gull	HG	10
CCA1	VP2	Mediterranean gull	MU	2
CCA1	VP2	Oystercatcher	OC	2
CCA1	VP2	Redshank	RK	1
CCA1	VP2	Ringed plover	RP	1
CCA1	VP2	Turnstone	TT	10
CCA2-3	VP1	Black-headed gull	BH	2
CCA2-3	VP1	Common Gull	CM	1
CCA2-3	VP1	Great black-backed gull	GB	2
CCA2-3	VP1	Herring gull	HG	20
CCA2-3	VP1	Shag	SA	12
CCA5	VP1	Brent goose	BG	20
CCA5	VP1	Black-headed gull	BH	23
CCA5	VP1	Cormorant	CA	24
CCA5	VP1	Common Gull	CM	4
CCA5	VP1	Great black-backed gull	GB	5
CCA5	VP1	Herring gull	HG	11
CCA5	VP1	Oystercatcher	OC	3
CCA5	VP1	Razorbill	RA	1
CCA5	VP1	Red-throated diver	RH	1
CCA5	VP1	Shag	SA	1
CCA5	VP1	Whooper swan	WS	1
CCA6.1	VP1	Brent goose	BG	19
CCA6.1	VP1	Black-headed gull	BH	52
CCA6.1	VP1	Black-throated diver	BV	1
CCA6.1	VP1	Cormorant	CA	2
CCA6.1	VP1	Common Gull	CM	1
CCA6.1	VP1	Great black-backed gull	GB	3
CCA6.1	VP1	Gannet	GX	5
CCA6.1	VP1	Herring gull	HG	19

CCA6.1	VP1	Oystercatcher	OC	24
CCA6.1	VP1	Razorbill	RA	1
CCA6.1	VP1	Red-throated diver	RH	5
CCA6.1	VP1	Redshank	RK	3
CCA6.1	VP1	Shag	SA	1
CCA6.1	VP2	Black-headed gull	BH	28
CCA6.1	VP2	Curlew	CU	5
CCA6.1	VP2	Little egret	ET	1
CCA6.1	VP2	Great black-backed gull	GB	2
CCA6.1	VP2	Guillemot	GU	1
CCA6.1	VP2	Gannet	GX	2
CCA6.1	VP2	Grey heron	H.	3
CCA6.1	VP2	Herring gull	HG	5
CCA6.1	VP2	Oystercatcher	OC	60
CCA6.1	VP2	Red-throated diver	RH	24
CCA6.1	VP2	Redshank	RK	1
CCA6.1	VP2	Shag	SA	11
CCA6.1	VP2	Stonechat	SC	2
CCA6.1	VP2	Teal	T.	30
CCA6.1	VP2	Wigeon	WN	300
CCA6.1	VP3	Brent goose	BG	32
CCA6.1	VP3	Black-headed gull	BH	5
CCA6.1	VP3	Cormorant	CA	6
CCA6.1	VP3	Curlew	CU	40
CCA6.1	VP3	Dunlin	DN	8
CCA6.1	VP3	Little egret	ET	1
CCA6.1	VP3	Great black-backed gull	GB	3
CCA6.1	VP3	Greylag goose	GJ	75
CCA6.1	VP3	Greenshank	GK	2
CCA6.1	VP3	Guillemot	GU	4
CCA6.1	VP3	Grey heron	H.	1
CCA6.1	VP3	Herring gull	HG	3
CCA6.1	VP3	Lapwing	L.	200
CCA6.1	VP3	Little grebe	LG	3
CCA6.1	VP3	Mallard	MA	8
CCA6.1	VP3	Great northern diver	ND	1

CCA6.1	VP3	Oystercatcher	OC	1
CCA6.1	VP3	Pink-footed goose	PG	2
CCA6.1	VP3	Red-throated diver	RH	18
CCA6.1	VP3	Redshank	RK	5
CCA6.1	VP3	Shag	SA	33
CCA6.1	VP3	Shelduck	SU	4
CCA6.1	VP3	Shoveler	SV	14
CCA6.1	VP3	Teal	T.	21
CCA6.1	VP3	Wigeon	WN	450
CCA6.1	VP3	Whooper swan	WS	50
CCA6.1	VP4	Brent goose	BG	5
CCA6.1	VP4	Black-headed gull	BH	99
CCA6.1	VP4	Black-tailed godwit	BW	55
CCA6.1	VP4	Cormorant	CA	31
CCA6.1	VP4	Common Gull	CM	1
CCA6.1	VP4	Curlew	CU	50
CCA6.1	VP4	Dunlin	DN	60
CCA6.1	VP4	Little egret	ET	2
CCA6.1	VP4	Great black-backed gull	GB	3
CCA6.1	VP4	Greylag goose	GJ	50
CCA6.1	VP4	Gannet	GX	1
CCA6.1	VP4	Grey heron	H.	1
CCA6.1	VP4	Herring gull	HG	9
CCA6.1	VP4	Lapwing	L.	7
CCA6.1	VP4	Little grebe	LG	2
CCA6.1	VP4	Mallard	MA	5
CCA6.1	VP4	Moorhen	MH	1
CCA6.1	VP4	Mute swan	MS	2
CCA6.1	VP4	Oystercatcher	OC	125
CCA6.1	VP4	Red-throated diver	RH	103
CCA6.1	VP4	Redshank	RK	2
CCA6.1	VP4	Ringed plover	RP	1
CCA6.1	VP4	Shag	SA	1
CCA6.1	VP4	Teal	T.	4
CCA6.1	VP4	Wigeon	WN	24
CCA6.1	VP4	Whooper swan	WS	2
CCA6.1	VP5	Black-headed gull	BH	2

CCA6.1	VP5	Buzzard	BZ	1
CCA6.1	VP5	Cormorant	CA	2
CCA6.1	VP5	Common Gull	CM	2
CCA6.1	VP5	Curlew	CU	1
CCA6.1	VP5	Little egret	ET	2
CCA6.1	VP5	Great black-backed gull	GB	2
CCA6.1	VP5	Grey heron	H.	1
CCA6.1	VP5	Herring gull	HG	1
CCA6.1	VP5	Kestrel	K.	1
CCA6.1	VP5	Red kite	KT	1
CCA6.1	VP5	Lapwing	L.	200
CCA6.1	VP5	Mallard	MA	3
CCA6.1	VP5	Mute swan	MS	2
CCA6.1	VP5	Oystercatcher	OC	1
CCA6.1	VP5	Razorbill	RA	1
CCA6.1	VP5	Red-throated diver	RH	24
CCA6.1	VP5	Redshank	RK	3
CCA6.1	VP5	Shag	SA	2
CCA6.1	VP5	Wigeon	WN	150
CCA6.2	VP1	Brent goose	BG	4
CCA6.2	VP1	Black-headed gull	BH	1
CCA6.2	VP1	Black-tailed godwit	BW	1
CCA6.2	VP1	Common Gull	CM	1
CCA6.2	VP1	Great black-backed gull	GB	3
CCA6.2	VP1	Great crested grebe	GG	1
CCA6.2	VP1	Guillemot	GU	2
CCA6.2	VP1	Herring gull	HG	4
CCA6.2	VP1	Mallard	MA	9
CCA6.2	VP1	Meadow pipit	MP	1
CCA6.2	VP1	Oystercatcher	OC	1
CCA6.2	VP1	Razorbill	RA	1
CCA6.2	VP1	Red-throated diver	RH	28
CCA6.2	VP1	Redshank	RK	1
CCA6.2	VP1	Shag	SA	3
CCA6.2	VP1	Shoveler	SV	25
CCA6.2	VP1	Teal	T.	25

CCA6.2	VP1	Turnstone	TT	1
CCA6.2	VP1	Wigeon	WN	4
CCA6.2	VP2	Black-headed gull	BH	1
CCA6.2	VP2	Common Gull	CM	3
CCA6.2	VP2	Curlew	CU	1
CCA6.2	VP2	Great black-backed gull	GB	3
CCA6.2	VP2	Guillemot	GU	1
CCA6.2	VP2	Herring gull	HG	18
CCA6.2	VP2	Red kite	KT	1
CCA6.2	VP2	Mallard	MA	3
CCA6.2	VP2	Great northern diver	ND	2
CCA6.2	VP2	Oystercatcher	OC	1
CCA6.2	VP2	Raven	RN	2
CCA6.2	VP2	Shag	SA	3
CCA6.2	VP2	Teal	T.	1
CCA6.2	VP2	Turnstone	TT	1
CCA6.2	VP4	Black-headed gull	BH	70
CCA6.2	VP4	Black-tailed godwit	BW	40
CCA6.2	VP4	Cormorant	CA	1
CCA6.2	VP4	Common Gull	CM	9
CCA6.2	VP4	Curlew	CU	12
CCA6.2	VP4	Dunlin	DN	15
CCA6.2	VP4	Little egret	ET	2
CCA6.2	VP4	Great black-backed gull	GB	17
CCA6.2	VP4	Greenshank	GK	2
CCA6.2	VP4	Grey plover	GV	1
CCA6.2	VP4	Grey heron	H.	1
CCA6.2	VP4	Herring gull	HG	35
CCA6.2	VP4	Lapwing	L.	29
CCA6.2	VP4	Little grebe	LG	12
CCA6.2	VP4	Mallard	MA	37
CCA6.2	VP4	Mute swan	MS	1
CCA6.2	VP4	Redshank	RK	8
CCA6.2	VP4	Ringed plover	RP	1
CCA6.2	VP4	Teal	T.	29
CCA6.2	VP4	Turnstone	TT	1

CCA6.2	VP4	Wigeon	WN	30
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January wintering bird survey results. Species in bold indicate a QI of a European Site within the Zol

Survey area	Vantage Point	Species	Species code	Peak Count
CCA1	VP1	Bar-tailed godwit	BA	2000
CCA1	VP1	Brent goose	BG	200
CCA1	VP1	Black-headed gull	BH	1000
CCA1	VP1	Black-tailed godwit	BW	200
CCA1	VP1	Common gull	CM	100
CCA1	VP1	Curlew	CU	33
CCA1	VP1	Dunlin	DN	1500
CCA1	VP1	Little egret	ET	2
CCA1	VP1	Great black-backed gull	GB	5
CCA1	VP1	Greenshank	GK	9
CCA1	VP1	Golden plover	GP	4
CCA1	VP1	Grey plover	GV	8
CCA1	VP1	Herring gull	HG	100
CCA1	VP1	Knot	KN	4000
CCA1	VP1	Mallard	MA	6
CCA1	VP1	Oystercatcher	OC	800
CCA1	VP1	Redshank	RK	250
CCA1	VP1	Ringed plover	RP	20
CCA1	VP1	Snipe	SN	1
CCA1	VP1	Sanderling	SS	30
CCA1	VP1	Shelduck	SU	3
CCA1	VP1	Teal	T.	115
CCA1	VP2	Brent goose	BG	3
CCA1	VP2	Black-headed gull	BH	25
CCA1	VP2	Cormorant	CA	1
CCA1	VP2	Common gull	CM	5
CCA1	VP2	Common scoter	CX	22
CCA1	VP2	Dunlin	DN	60
CCA1	VP2	Great black-backed gull	GB	3
CCA1	VP2	Great crested grebe	GG	2
CCA1	VP2	Herring gull	HG	15
CCA1	VP2	Lesser black-backed gull	LB	1
CCA1	VP2	Mallard	MA	2

CCA1	VP2	Mediterranean gull	MU	4
CCA1	VP2	Oystercatcher	OC	240
CCA1	VP2	Ringed plover	RP	2
CCA1	VP2	Turnstone	TT	12
CCA2-3	VP1	Black-headed gull	BH	26
CCA2-3	VP1	Cormorant	CA	1
CCA2-3	VP1	Great black-backed gull	GB	3
CCA2-3	VP1	Herring gull	HG	7
CCA2-3	VP1	Mediterranean gull	MU	1
CCA2-3	VP1	Shag	SA	6
CCA5	VP1	Brent goose	BG	9
CCA5	VP1	Black-headed gull	BH	236
CCA5	VP1	Cormorant	CA	86
CCA5	VP1	Great black-backed gull	GB	1
CCA5	VP1	Herring gull	HG	29
CCA5	VP1	Red-throated diver	RH	1
CCA5	VP1	Ringed plover	RP	15
CCA5	VP1	Shag	SA	1
CCA6.1	VP1	Brent goose	BG	45
CCA6.1	VP1	Black-headed gull	BH	83
CCA6.1	VP1	Cormorant	CA	3
CCA6.1	VP1	Great black-backed gull	GB	1
CCA6.1	VP1	Guillemot	GU	1
CCA6.1	VP1	Herring gull	HG	14
CCA6.1	VP1	Mute swan	MS	2
CCA6.1	VP1	Oystercatcher	OC	68
CCA6.1	VP1	Razorbill	RA	1
CCA6.1	VP1	Red-throated diver	RH	2
CCA6.1	VP1	Redshank	RK	4
CCA6.1	VP1	Ringed plover	RP	12
CCA6.1	VP1	Shag	SA	4
CCA6.1	VP1	Turnstone	TT	6
CCA6.1	VP1	Wigeon	WN	4
CCA6.1	VP2	Black-headed gull	BH	3
CCA6.1	VP2	Cormorant	CA	2
CCA6.1	VP2	Curlew	CU	140
CCA6.1	VP2	Great black-backed gull	GB	1
CCA6.1	VP2	Gannet	GX	3

CCA6.1	VP2	Grey heron	H.	2
CCA6.1	VP2	Herring gull	HG	6
CCA6.1	VP2	Kittiwake	KI	1
CCA6.1	VP2	Mallard	MA	6
CCA6.1	VP2	Mute swan	MS	2
CCA6.1	VP2	Great northern diver	ND	1
CCA6.1	VP2	Oystercatcher	OC	1
CCA6.1	VP2	Razorbill	RA	1
CCA6.1	VP2	Red-throated diver	RH	205
CCA6.1	VP2	Shag	SA	80
CCA6.1	VP2	Teal	T.	35
CCA6.1	VP2	Wigeon	WN	9
CCA6.1	VP3	Brent goose	BG	50
CCA6.1	VP3	Black-headed gull	BH	9
CCA6.1	VP3	Cormorant	CA	8
CCA6.1	VP3	Curlew	CU	70
CCA6.1	VP3	Little egret	ET	1
CCA6.1	VP3	Great black-backed gull	GB	5
CCA6.1	VP3	Greylag goose	GJ	17
CCA6.1	VP3	Gannet	GX	2
CCA6.1	VP3	Herring gull	HG	6
CCA6.1	VP3	Kittiwake	KI	1
CCA6.1	VP3	Red kite	KT	1
CCA6.1	VP3	Lapwing	L.	500
CCA6.1	VP3	Little grebe	LG	1
CCA6.1	VP3	Mallard	MA	3
CCA6.1	VP3	Mute swan	MS	2
CCA6.1	VP3	Great northern diver	ND	1
CCA6.1	VP3	Oystercatcher	OC	2
CCA6.1	VP3	Razorbill	RA	1
CCA6.1	VP3	Red-throated diver	RH	5
CCA6.1	VP3	Ringed plover	RP	1
CCA6.1	VP3	Shag	SA	5
CCA6.1	VP3	Sparrowhawk	SH	1
CCA6.1	VP3	Shoveler	SV	4
CCA6.1	VP3	Teal	T.	22
CCA6.1	VP3	Wigeon	WN	1000
CCA6.1	VP3	Whooper swan	WS	9

CCA6.1	VP4	Brent goose	BG	46
CCA6.1	VP4	Black-headed gull	BH	58
CCA6.1	VP4	Black-tailed godwit	BW	10
CCA6.1	VP4	Cormorant	CA	4
CCA6.1	VP4	Common gull	CM	15
CCA6.1	VP4	Curlew	CU	62
CCA6.1	VP4	Dunlin	DN	9
CCA6.1	VP4	Little egret	ET	1
CCA6.1	VP4	Great black-backed gull	GB	1
CCA6.1	VP4	Greylag goose	GJ	110
CCA6.1	VP4	Greenshank	GK	2
CCA6.1	VP4	Grey heron	H.	2
CCA6.1	VP4	Herring gull	HG	14
CCA6.1	VP4	Little grebe	LG	2
CCA6.1	VP4	Mallard	MA	4
CCA6.1	VP4	Oystercatcher	OC	6
CCA6.1	VP4	Razorbill	RA	2
CCA6.1	VP4	Red-throated diver	RH	2
CCA6.1	VP4	Redshank	RK	5
CCA6.1	VP4	Ringed plover	RP	9
CCA6.1	VP4	Shag	SA	11
CCA6.1	VP4	Shelduck	SU	3
CCA6.1	VP4	Shoveler	SV	4
CCA6.1	VP4	Teal	T.	12
CCA6.1	VP4	Wigeon	WN	230
CCA6.1	VP4	Whooper swan	WS	21
CCA6.1	VP5	Cormorant	CA	7
CCA6.1	VP5	Curlew	CU	2
CCA6.1	VP5	Little egret	ET	1
CCA6.1	VP5	Great black-backed gull	GB	3
CCA6.1	VP5	Greylag goose	GJ	150
CCA6.1	VP5	Guillemot	GU	1
CCA6.1	VP5	Grey heron	H.	1
CCA6.1	VP5	Herring gull	HG	23
CCA6.1	VP5	Kestrel	K.	1
CCA6.1	VP5	Mallard	MA	3
CCA6.1	VP5	Oystercatcher	OC	8
CCA6.1	VP5	Razorbill	RA	1

CCA6.1	VP5	Red-throated diver	RH	3
CCA6.1	VP5	Redshank	RK	2
CCA6.1	VP5	Shag	SA	24
CCA6.1	VP5	Snipe	SN	3
CCA6.1	VP5	Shoveler	SV	6
CCA6.1	VP5	Teal	T.	4
CCA6.1	VP5	Wigeon	WN	190
CCA6.2	VP1	Black-headed gull	BH	21
CCA6.2	VP1	Cormorant	CA	7
CCA6.2	VP1	Curlew	CU	8
CCA6.2	VP1	Great black-backed gull	GB	7
CCA6.2	VP1	Gannet	GX	1
CCA6.2	VP1	Herring gull	HG	10
CCA6.2	VP1	Red kite	KT	1
CCA6.2	VP1	Mallard	MA	5
CCA6.2	VP1	Merlin	ML	1
CCA6.2	VP1	Oystercatcher	OC	1
CCA6.2	VP1	Red-throated diver	RH	2
CCA6.2	VP1	Shag	SA	1
CCA6.2	VP1	Sanderling	SS	1
CCA6.2	VP1	Shoveler	SV	52
CCA6.2	VP1	Teal	T.	17
CCA6.2	VP1	Wigeon	WN	440
CCA6.2	VP1	Whooper swan	WS	2
CCA6.2	VP2	Black-headed gull	BH	3
CCA6.2	VP2	Buzzard	BZ	2
CCA6.2	VP2	Cormorant	CA	3
CCA6.2	VP2	Little egret	ET	1
CCA6.2	VP2	Great black-backed gull	GB	1
CCA6.2	VP2	Gannet	GX	1
CCA6.2	VP2	Herring gull	HG	9
CCA6.2	VP2	Red kite	KT	4
CCA6.2	VP2	Mallard	MA	8
CCA6.2	VP2	Peregrine	PE	1
CCA6.2	VP2	Razorbill	RA	1
CCA6.2	VP2	Red-throated diver	RH	3
CCA6.2	VP2	Shag	SA	1
CCA6.2	VP2	Sparrowhawk	SH	1

CCA6.2	VP2	Teal	T.	33
CCA6.2	VP2	Turnstone	TT	3
CCA6.2	VP2	Water rail	WA	1
CCA6.2	VP2	Wigeon	WN	250
CCA6.2	VP4	Black-headed gull	BH	29
CCA6.2	VP4	Cormorant	CA	1
CCA6.2	VP4	Curlew	CU	40
CCA6.2	VP4	Little egret	ET	1
CCA6.2	VP4	Great black-backed gull	GB	8
CCA6.2	VP4	Greenshank	GK	2
CCA6.2	VP4	Grey heron	H.	1
CCA6.2	VP4	Herring gull	HG	8
CCA6.2	VP4	Lapwing	L.	29
CCA6.2	VP4	Little grebe	LG	4
CCA6.2	VP4	Mallard	MA	3
CCA6.2	VP4	Mute swan	MS	2
CCA6.2	VP4	Redshank	RK	5
CCA6.2	VP4	Teal	T.	2
CCA6.2	VP4	Wigeon	WN	19

February wintering bird survey results. Species in bold indicate a QI of a European Site within the Zol

Survey area	Vantage Point	Species	Species code	Peak Count
CCA1	VP1	Bar-tailed godwit	BA	800
CCA1	VP1	Brent goose	BG	400
CCA1	VP1	Black-headed gull	BH	300
CCA1	VP1	Black-tailed godwit	BW	350
CCA1	VP1	Common gull	CM	30
CCA1	VP1	Curlew	CU	15
CCA1	VP1	Dunlin	DN	10000
CCA1	VP1	Little egret	ET	3
CCA1	VP1	Great black-backed gull	GB	1
CCA1	VP1	Greenshank	GK	14
CCA1	VP1	Grey heron	H.	4
CCA1	VP1	Herring gull	HG	5
CCA1	VP1	Knot	KN	15000
CCA1	VP1	Moorhen	MH	6
CCA1	VP1	Oystercatcher	OC	1500

CCA1	VP1	Redshank	RK	110
CCA1	VP1	Ringed plover	RP	100
CCA1	VP1	Sanderling	SS	30
CCA1	VP1	Shelduck	SU	5
CCA1	VP1	Teal	T.	60
CCA1	VP2	Brent goose	BG	6
CCA1	VP2	Black-headed gull	BH	5
CCA1	VP2	Cormorant	CA	6
CCA1	VP2	Common gull	CM	1
CCA1	VP2	Curlew	CU	2
CCA1	VP2	Great black-backed gull	GB	1
CCA1	VP2	Great crested grebe	GG	1
CCA1	VP2	Herring gull	HG	27
CCA1	VP2	Mallard	MA	4
CCA1	VP2	Mute swan	MS	1
CCA1	VP2	Oystercatcher	OC	4
CCA1	VP2	Redshank	RK	1
CCA1	VP2	Red-breasted merganser	RM	18
CCA1	VP2	Turnstone	TT	19
CCA2-3	VP1	Black-headed gull	BH	1
CCA2-3	VP1	Cormorant	CA	6
CCA2-3	VP1	Great black-backed gull	GB	6
CCA2-3	VP1	Guillemot	GU	100
CCA2-3	VP1	Gannet	GX	1
CCA2-3	VP1	Herring gull	HG	60
CCA2-3	VP1	Kittiwake	KI	1
CCA2-3	VP1	Lesser black-backed gull	LB	1
CCA2-3	VP1	Mediterranean gull	MU	3
CCA2-3	VP1	Great northern diver	ND	1
CCA2-3	VP1	Oystercatcher	OC	18
CCA2-3	VP1	Red-throated diver	RH	1
CCA2-3	VP1	Shag	SA	15
CCA2-3	VP1	Black guillemot	TY	3
CCA5	VP1	Black-headed gull	BH	53
CCA5	VP1	Cormorant	CA	1
CCA5	VP1	Common gull	CM	42
CCA5	VP1	Fulmar	F.	2
CCA5	VP1	Great black-backed gull	GB	1

CCA5	VP1	Guillemot	GU	3
CCA5	VP1	Gannet	GX	7
CCA5	VP1	Herring gull	HG	13
CCA5	VP1	Mute swan	MS	3
CCA5	VP1	Red-throated diver	RH	1
CCA5	VP1	Shag	SA	87
CCA5	VP1	Turnstone	TT	4
CCA5	VP1	Black guillemot	TY	1
CCA6.1	VP1	Brent goose	BG	142
CCA6.1	VP1	Black-headed gull	BH	83
CCA6.1	VP1	Cormorant	CA	5
CCA6.1	VP1	Great black-backed gull	GB	1
CCA6.1	VP1	Guillemot	GU	3
CCA6.1	VP1	Gannet	GX	2
CCA6.1	VP1	Herring gull	HG	10
CCA6.1	VP1	Oystercatcher	OC	40
CCA6.1	VP1	Razorbill	RA	9
CCA6.1	VP1	Red-throated diver	RH	7
CCA6.1	VP1	Ringed plover	RP	10
CCA6.1	VP1	Shag	SA	36
CCA6.1	VP1	Turnstone	TT	8
CCA6.1	VP1	Black guillemot	TY	3
CCA6.1	VP2	Brent goose	BG	35
CCA6.1	VP2	Black-headed gull	BH	500
CCA6.1	VP2	Cormorant	CA	1
CCA6.1	VP2	Common gull	CM	14
CCA6.1	VP2	Curlew	CU	13
CCA6.1	VP2	Great black-backed gull	GB	5
CCA6.1	VP2	Guillemot	GU	3
CCA6.1	VP2	Gannet	GX	1
CCA6.1	VP2	Grey heron	H.	2
CCA6.1	VP2	Herring gull	HG	20
CCA6.1	VP2	Kittiwake	KI	1
CCA6.1	VP2	Mallard	MA	6
CCA6.1	VP2	Mute swan	MS	1
CCA6.1	VP2	Mediterranean gull	MU	2
CCA6.1	VP2	Oystercatcher	OC	6
CCA6.1	VP2	Razorbill	RA	2

CCA6.1	VP2	Red-throated diver	RH	11
CCA6.1	VP2	Shag	SA	20
CCA6.1	VP2	Snipe	SN	1
CCA6.1	VP2	Shelduck	SU	3
CCA6.1	VP2	Teal	T.	20
CCA6.1	VP2	Black guillemot	TY	1
CCA6.1	VP3	Brent goose	BG	54
CCA6.1	VP3	Black-tailed godwit	BW	9
CCA6.1	VP3	Cormorant	CA	4
CCA6.1	VP3	Curlew	CU	36
CCA6.1	VP3	Dunlin	DN	10
CCA6.1	VP3	Little egret	ET	1
CCA6.1	VP3	Great black-backed gull	GB	3
CCA6.1	VP3	Greylag goose	GJ	100
CCA6.1	VP3	Greenshank	GK	1
CCA6.1	VP3	Golden plover	GP	4
CCA6.1	VP3	Gannet	GX	1
CCA6.1	VP3	Herring gull	HG	6
CCA6.1	VP3	Lapwing	L.	1000
CCA6.1	VP3	Little grebe	LG	4
CCA6.1	VP3	Mallard	MA	6
CCA6.1	VP3	Mute swan	MS	1
CCA6.1	VP3	Oystercatcher	OC	2
CCA6.1	VP3	Peregrine	PE	1
CCA6.1	VP3	Razorbill	RA	1
CCA6.1	VP3	Red-throated diver	RH	1
CCA6.1	VP3	Redshank	RK	9
CCA6.1	VP3	Skylark	S.	8
CCA6.1	VP3	Shag	SA	3
CCA6.1	VP3	Snipe	SN	1
CCA6.1	VP3	Shelduck	SU	3
CCA6.1	VP3	Shoveler	SV	17
CCA6.1	VP3	Teal	T.	3
CCA6.1	VP3	Wigeon	WN	2000
CCA6.1	VP3	Whooper swan	WS	35
CCA6.1	VP4	Black-headed gull	BH	60
CCA6.1	VP4	Black-throated diver	BV	1
CCA6.1	VP4	Cormorant	CA	3

CCA6.1	VP4	Common gull	CM	1
CCA6.1	VP4	Curlew	CU	22
CCA6.1	VP4	Little egret	ET	1
CCA6.1	VP4	Great black-backed gull	GB	4
CCA6.1	VP4	Greenshank	GK	1
CCA6.1	VP4	Guillemot	GU	6
CCA6.1	VP4	Grey heron	H.	1
CCA6.1	VP4	Herring gull	HG	46
CCA6.1	VP4	Kestrel	K.	1
CCA6.1	VP4	Red kite	KT	1
CCA6.1	VP4	Lapwing	L.	45
CCA6.1	VP4	Little grebe	LG	2
CCA6.1	VP4	Mallard	MA	2
CCA6.1	VP4	Moorhen	MH	1
CCA6.1	VP4	Merlin	ML	1
CCA6.1	VP4	Mute swan	MS	3
CCA6.1	VP4	Oystercatcher	OC	8
CCA6.1	VP4	Razorbill	RA	4
CCA6.1	VP4	Red-throated diver	RH	6
CCA6.1	VP4	Redshank	RK	5
CCA6.1	VP4	Ringed plover	RP	6
CCA6.1	VP4	Shag	SA	22
CCA6.1	VP4	Stonechat	SC	1
CCA6.1	VP4	Shelduck	SU	2
CCA6.1	VP4	Shoveler	SV	3
CCA6.1	VP4	Teal	T.	2
CCA6.1	VP4	Turnstone	TT	2
CCA6.1	VP4	Wigeon	WN	52
CCA6.1	VP4	Whooper swan	WS	40
CCA6.1	VP5	Brent goose	BG	2
CCA6.1	VP5	Black-headed gull	BH	42
CCA6.1	VP5	Black-tailed godwit	BW	6
CCA6.1	VP5	Buzzard	BZ	1
CCA6.1	VP5	Cormorant	CA	6
CCA6.1	VP5	Curlew	CU	11
CCA6.1	VP5	Little egret	ET	1
CCA6.1	VP5	Great black-backed gull	GB	1
CCA6.1	VP5	Greylag goose	GJ	90

CCA6.1	VP5	Guillemot	GU	2
CCA6.1	VP5	Gannet	GX	1
CCA6.1	VP5	Herring gull	HG	11
CCA6.1	VP5	Kestrel	K.	1
CCA6.1	VP5	Mallard	MA	4
CCA6.1	VP5	Oystercatcher	OC	6
CCA6.1	VP5	Razorbill	RA	5
CCA6.1	VP5	Red-throated diver	RH	2
CCA6.1	VP5	Ringed plover	RP	2
CCA6.1	VP5	Shag	SA	32
CCA6.1	VP5	Shelduck	SU	2
CCA6.1	VP5	Shoveler	SV	32
CCA6.1	VP5	Teal	T.	96
CCA6.1	VP5	Black guillemot	TY	1
CCA6.1	VP5	Water rail	WA	2
CCA6.1	VP5	Wigeon	WN	248
CCA6.2	VP1	Black-headed gull	BH	4
CCA6.2	VP1	Black-tailed godwit	BW	1
CCA6.2	VP1	Buzzard	BZ	1
CCA6.2	VP1	Cormorant	CA	1
CCA6.2	VP1	Curlew	CU	1
CCA6.2	VP1	Little egret	ET	1
CCA6.2	VP1	Great black-backed gull	GB	3
CCA6.2	VP1	Grey heron	H.	1
CCA6.2	VP1	Herring gull	HG	5
CCA6.2	VP1	Mallard	MA	5
CCA6.2	VP1	Moorhen	MH	2
CCA6.2	VP1	Mute swan	MS	2
CCA6.2	VP1	Oystercatcher	OC	1
CCA6.2	VP1	Red-throated diver	RH	2
CCA6.2	VP1	Shag	SA	15
CCA6.2	VP1	Shelduck	SU	2
CCA6.2	VP1	Teal	T.	72
CCA6.2	VP1	Black guillemot	TY	1
CCA6.2	VP1	Water rail	WA	1
CCA6.2	VP1	Wigeon	WN	150
CCA6.2	VP2	Black-headed gull	BH	1
CCA6.2	VP2	Buzzard	BZ	2

CCA6.2	VP2	Cormorant	CA	1
CCA6.2	VP2	Little egret	ET	1
CCA6.2	VP2	Great black-backed gull	GB	2
CCA6.2	VP2	Guillemot	GU	1
CCA6.2	VP2	Grey heron	H.	3
CCA6.2	VP2	Herring gull	HG	3
CCA6.2	VP2	Kestrel	K.	1
CCA6.2	VP2	Mallard	MA	3
CCA6.2	VP2	Oystercatcher	OC	1
CCA6.2	VP2	Razorbill	RA	3
CCA6.2	VP2	Red-throated diver	RH	3
CCA6.2	VP2	Ringed plover	RP	2
CCA6.2	VP2	Shag	SA	8
CCA6.2	VP2	Shelduck	SU	1
CCA6.2	VP2	Turnstone	TT	1
CCA6.2	VP2	Water rail	WA	3
CCA6.2	VP4	Black-headed gull	BH	133
CCA6.2	VP4	Black-tailed godwit	BW	80
CCA6.2	VP4	Buzzard	BZ	3
CCA6.2	VP4	Common gull	CM	4
CCA6.2	VP4	Curlew	CU	25
CCA6.2	VP4	Dunlin	DN	45
CCA6.2	VP4	Little egret	ET	3
CCA6.2	VP4	Great black-backed gull	GB	8
CCA6.2	VP4	Greenshank	GK	2
CCA6.2	VP4	Grey heron	H.	2
CCA6.2	VP4	Herring gull	HG	36
CCA6.2	VP4	Lesser black-backed gull	LB	2
CCA6.2	VP4	Little grebe	LG	4
CCA6.2	VP4	Mallard	MA	11
CCA6.2	VP4	Redshank	RK	37
CCA6.2	VP4	Shelduck	SU	1
CCA6.2	VP4	Teal	T.	22
CCA6.2	VP4	Wigeon	WN	15

March wintering bird survey results. Species in bold indicate a QI of a European Site within the Zol

Survey area	Vantage Point	Species	Species code	Peak Count
CCA1	VP1	Bar-tailed godwit	BA	10000
CCA1	VP1	Brent goose	BG	84
CCA1	VP1	Black-headed gull	BH	220
CCA1	VP1	Black-tailed godwit	BW	1500
CCA1	VP1	Common gull	CM	20
CCA1	VP1	Curlew	CU	30
CCA1	VP1	Dunlin	DN	30000
CCA1	VP1	Little egret	ET	3
CCA1	VP1	Greenshank	GK	14
CCA1	VP1	Grey plover	GV	50
CCA1	VP1	Grey heron	H.	1
CCA1	VP1	Herring gull	HG	12
CCA1	VP1	Knot	KN	20000
CCA1	VP1	Lesser black-backed gull	LB	1
CCA1	VP1	Mallard	MA	3
CCA1	VP1	Oystercatcher	OC	1000
CCA1	VP1	Redshank	RK	90
CCA1	VP1	Red-breasted merganser	RM	25
CCA1	VP1	Ringed plover	RP	50
CCA1	VP1	Snipe	SN	2
CCA1	VP1	Sanderling	SS	80
CCA1	VP1	Shelduck	SU	2
CCA1	VP1	Teal	T.	55
CCA1	VP2	Brent goose	BG	31
CCA1	VP2	Cormorant	CA	6
CCA1	VP2	Common gull	CM	1
CCA1	VP2	Common scoter	CX	12
CCA1	VP2	Dunlin	DN	9
CCA1	VP2	Little egret	ET	1
CCA1	VP2	Great black-backed gull	GB	3
CCA1	VP2	Great crested grebe	GG	6
CCA1	VP2	Greenshank	GK	5
CCA1	VP2	Gannet	GX	4
CCA1	VP2	Herring gull	HG	11
CCA1	VP2	Mallard	MA	2
CCA1	VP2	Oystercatcher	OC	25

CCA1	VP2	Razorbill	RA	5
CCA1	VP2	Redshank	RK	2
CCA1	VP2	Red-breasted merganser	RM	25
CCA1	VP2	Shelduck	SU	1
CCA1	VP2	Turnstone	TT	11
CCA2-3	VP1	Brent goose	BG	18
CCA2-3	VP1	Black-headed gull	BH	60
CCA2-3	VP1	Cormorant	CA	2
CCA2-3	VP1	Common gull	CM	1
CCA2-3	VP1	Great black-backed gull	GB	2
CCA2-3	VP1	Guillemot	GU	12
CCA2-3	VP1	Gannet	GX	2
CCA2-3	VP1	Herring gull	HG	10
CCA2-3	VP1	Kittiwake	KI	1
CCA2-3	VP1	Mediterranean gull	MU	1
CCA2-3	VP1	Razorbill	RA	4
CCA2-3	VP1	Shag	SA	12
CCA2-3	VP1	Shelduck	SU	2
CCA2-3	VP1	Black guillemot	TY	6
CCA5	VP1	Black-headed gull	BH	33
CCA5	VP1	Cormorant	CA	12
CCA5	VP1	Great black-backed gull	GB	2
CCA5	VP1	Gannet	GX	2
CCA5	VP1	Herring gull	HG	27
CCA5	VP1	Razorbill	RA	5
CCA5	VP1	Shag	SA	10
CCA5	VP1	Black guillemot	TY	1
CCA6.1	VP1	Brent goose	BG	123
CCA6.1	VP1	Black-headed gull	BH	80
CCA6.1	VP1	Cormorant	CA	5
CCA6.1	VP1	Common gull	CM	6
CCA6.1	VP1	Great black-backed gull	GB	6
CCA6.1	VP1	Guillemot	GU	6
CCA6.1	VP1	Gannet	GX	1
CCA6.1	VP1	Grey heron	H.	1
CCA6.1	VP1	Herring gull	HG	64
CCA6.1	VP1	Mute swan	MS	2
CCA6.1	VP1	Oystercatcher	OC	88

CCA6.1	VP1	Red-throated diver	RH	1
CCA6.1	VP1	Shag	SA	24
CCA6.1	VP2	Black-headed gull	BH	4
CCA6.1	VP2	Buzzard	BZ	1
CCA6.1	VP2	Cormorant	CA	6
CCA6.1	VP2	Common gull	CM	4
CCA6.1	VP2	Little egret	ET	1
CCA6.1	VP2	Great black-backed gull	GB	12
CCA6.1	VP2	Guillemot	GU	1
CCA6.1	VP2	Gannet	GX	2
CCA6.1	VP2	Grey heron	H.	1
CCA6.1	VP2	Herring gull	HG	8
CCA6.1	VP2	Red kite	KT	3
CCA6.1	VP2	Meadow pipit	MP	50
CCA6.1	VP2	Mute swan	MS	2
CCA6.1	VP2	Razorbill	RA	2
CCA6.1	VP2	Red-throated diver	RH	2
CCA6.1	VP2	Ringed plover	RP	2
CCA6.1	VP2	Shag	SA	6
CCA6.1	VP2	Shelduck	SU	1
CCA6.1	VP2	Teal	T.	3
CCA6.1	VP2	Turnstone	TT	2
CCA6.1	VP2	Wigeon	WN	7
CCA6.1	VP3	Black-tailed godwit	BW	1
CCA6.1	VP3	Cormorant	CA	14
CCA6.1	VP3	Dunlin	DN	2
CCA6.1	VP3	Little egret	ET	1
CCA6.1	VP3	Great black-backed gull	GB	2
CCA6.1	VP3	Greylag goose	GJ	30
CCA6.1	VP3	Greenshank	GK	1
CCA6.1	VP3	Golden plover	GP	400
CCA6.1	VP3	Grey heron	H.	1
CCA6.1	VP3	Herring gull	HG	3
CCA6.1	VP3	Lapwing	L.	30
CCA6.1	VP3	Little grebe	LG	2
CCA6.1	VP3	Mute swan	MS	3
CCA6.1	VP3	Oystercatcher	OC	1
CCA6.1	VP3	Redshank	RK	3

CCA6.1	VP3	Shelduck	SU	2
CCA6.1	VP3	Wigeon	WN	500
CCA6.1	VP3	Whooper swan	WS	40
CCA6.1	VP4	Black-headed gull	BH	1
CCA6.1	VP4	Cormorant	CA	7
CCA6.1	VP4	Common gull	CM	2
CCA6.1	VP4	Little egret	ET	1
CCA6.1	VP4	Great black-backed gull	GB	16
CCA6.1	VP4	Greylag goose	GJ	22
CCA6.1	VP4	Grey heron	H.	1
CCA6.1	VP4	Herring gull	HG	33
CCA6.1	VP4	Mallard	MA	2
CCA6.1	VP4	Mute swan	MS	3
CCA6.1	VP4	Oystercatcher	OC	9
CCA6.1	VP4	Red-throated diver	RH	1
CCA6.1	VP4	Redshank	RK	2
CCA6.1	VP4	Ringed plover	RP	2
CCA6.1	VP4	Shag	SA	7
CCA6.1	VP4	Snipe	SN	1
CCA6.1	VP4	Wigeon	WN	15
CCA6.1	VP5	Black-headed gull	BH	5
CCA6.1	VP5	Cormorant	CA	2
CCA6.1	VP5	Eider	E.	1
CCA6.1	VP5	Little egret	ET	1
CCA6.1	VP5	Great black-backed gull	GB	39
CCA6.1	VP5	Golden plover	GP	80
CCA6.1	VP5	Guillemot	GU	2
CCA6.1	VP5	Gannet	GX	8
CCA6.1	VP5	Herring gull	HG	9
CCA6.1	VP5	Mallard	MA	2
CCA6.1	VP5	Oystercatcher	OC	20
CCA6.1	VP5	Razorbill	RA	1
CCA6.1	VP5	Ringed plover	RP	2
CCA6.1	VP5	Shag	SA	1
CCA6.1	VP5	Shoveler	SV	2
CCA6.1	VP5	Teal	T.	115
CCA6.1	VP5	Black guillemot	TY	1
CCA6.1	VP5	Wigeon	WN	39

CCA6.2	VP1	Black-headed gull	BH	5
CCA6.2	VP1	Black-tailed godwit	BW	15
CCA6.2	VP1	Cormorant	CA	7
CCA6.2	VP1	Little egret	ET	1
CCA6.2	VP1	Great black-backed gull	GB	90
CCA6.2	VP1	Gannet	GX	8
CCA6.2	VP1	Herring gull	HG	3
CCA6.2	VP1	Lapwing	L.	1
CCA6.2	VP1	Mallard	MA	4
CCA6.2	VP1	Oystercatcher	OC	1
CCA6.2	VP1	Shag	SA	1
CCA6.2	VP1	Teal	T.	3
CCA6.2	VP2	Black-headed gull	BH	1
CCA6.2	VP2	Buzzard	BZ	4
CCA6.2	VP2	Cormorant	CA	2
CCA6.2	VP2	Little egret	ET	2
CCA6.2	VP2	Great black-backed gull	GB	6
CCA6.2	VP2	Grey heron	H.	2
CCA6.2	VP2	Herring gull	HG	10
CCA6.2	VP2	Kestrel	K.	1
CCA6.2	VP2	Red kite	KT	1
CCA6.2	VP2	Mallard	MA	3
CCA6.2	VP2	Ringed plover	RP	3
CCA6.2	VP2	Shag	SA	1
CCA6.2	VP2	Snipe	SN	3
CCA6.2	VP2	Shelduck	SU	1
CCA6.2	VP2	Teal	T.	3
CCA6.2	VP2	Turnstone	TT	9
CCA6.2	VP4	Black-headed gull	BH	24
CCA6.2	VP4	Black-tailed godwit	BW	170
CCA6.2	VP4	Buzzard	BZ	3
CCA6.2	VP4	Cormorant	CA	1
CCA6.2	VP4	Common gull	CM	1
CCA6.2	VP4	Curlew	CU	1
CCA6.2	VP4	Little egret	ET	1
CCA6.2	VP4	Great black-backed gull	GB	6
CCA6.2	VP4	Greenshank	GK	3
CCA6.2	VP4	Grey heron	H.	2

CCA6.2	VP4	Herring gull	HG	32
CCA6.2	VP4	Red kite	KT	1
CCA6.2	VP4	Lesser black-backed gull	LB	6
CCA6.2	VP4	Oystercatcher	OC	2
CCA6.2	VP4	Redshank	RK	30
CCA6.2	VP4	Shelduck	SU	4
CCA6.2	VP4	Wigeon	WN	8

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Appendix E. Breeding Bird Survey Results

April breeding bird survey results. Species in bold indicate a QI of a European Site within the Zol

Licence Area	Vantage Point / Transect	Species	Code	Number of records	Peak Count	Highest Breeding Status
CCA2-3	1	Cormorant	CA	1	9	Probable
CCA2-3	1	Great black-backed gull	GB	3	7	Probable
CCA2-3	1	Grasshopper warbler	GH	1	1	Possible
CCA2-3	1	Herring gull	HG	2	38	Probable
CCA2-3	1	Meadow pipit	MP	1	2	Probable
CCA2-3	1	Oystercatcher	OC	3	6	Probable
CCA2-3	1	Black guillemot	TY	2	8	Possible
CCA2-3	2	Feral pigeon	FP	1	1	Possible
CCA2-3	2	Guillemot	GU	2	1	Possible
CCA2-3	2	Hooded crow	HC	1	1	Possible
CCA2-3	2	Herring gull	HG	3	12	Probable
CCA2-3	2	Lesser black-backed gull	LB	1	6	Probable
CCA2-3	2	Peregrine	PE	1	1	Possible
CCA2-3	2	Shag	SA	1	3	Probable
CCA2-3	2	Shelduck	SU	1	7	Probable
CCA2-3	2	Woodpigeon	WP	1	2	Probable
CCA5	1	Blackbird	B.	6	2	Probable
CCA5	1	Blackcap	BC	1	1	Probable
CCA5	1	Blue tit	BT	1	1	Possible
CCA5	1	Cormorant	CA	5	120	Confirmed
CCA5	1	Dunnock	D.	4	2	Probable
CCA5	1	Fulmar	F.	3	5	Confirmed
CCA5	1	Great black-backed gull	GB	2	2	Possible
CCA5	1	Goldfinch	GO	7	2	Probable
CCA5	1	Great tit	GT	1	1	Probable
CCA5	1	Guillemot	GU	9	50	Probable
CCA5	1	Hooded crow	HC	2	2	Probable
CCA5	1	Herring gull	HG	7	8	Probable
CCA5	1	Meadow pipit	MP	2	1	Probable
CCA5	1	Robin	R.	1	1	Possible
CCA5	1	Razorbill	RA	1	20	Probable
CCA5	1	Shag	SA	2	75	Confirmed

CCA5	1	Stonechat	SC	1	1	Possible
CCA5	1	Starling	SG	2	50	Probable
CCA5	1	Swallow	SL	1	8	Probable
CCA5	1	Sand martin	SM	3	100	Confirmed
CCA5	1	Song thrush	ST	4	2	Probable
CCA5	1	Black guillemot	TY	1	15	Probable
CCA5	1	Woodpigeon	WP	5	2	Probable
CCA5	1	Wren	WR	6	2	Probable
CCA5	1	Willow warbler	WW	1	1	Probable
CCA6.1	1	Little tern	AF	1	2	Probable
CCA6.1	1	Blackbird	B.	1	2	Probable
CCA6.1	1	Common Sandpiper	CS	2	1	Possible
CCA6.1	1	Dunlin	DN	1	2	Possible
CCA6.1	1	Goldfinch	GO	1	1	Possible
CCA6.1	1	Hooded crow	HC	1	1	Possible
CCA6.1	1	House sparrow	HS	1	4	Probable
CCA6.1	1	Linnet	LI	3	4	Probable
CCA6.1	1	Mallard	MA	2	2	Probable
CCA6.1	1	Magpie	MG	1	2	Probable
CCA6.1	1	Meadow pipit	MP	4	2	Probable
CCA6.1	1	Pied wagtail	PW	1	1	Possible
CCA6.1	1	Ringed plover	RP	12	7	Probable
CCA6.1	1	Skylark	S.	1	1	Possible
CCA6.1	1	Stonechat	SC	5	1	Possible
CCA6.1	1	Starling	SG	1	2	Probable
CCA6.1	1	Swallow	SL	1	2	Possible
CCA6.1	1	Sand martin	SM	1	15	Possible
CCA6.1	1	Snipe	SN	2	1	Probable
CCA6.1	1	Song thrush	ST	1	1	Possible
CCA6.1	1	Teal	T.	1	4	Probable
CCA6.1	1	Wheatear	W.	7	2	Possible
CCA6.1	1	Woodpigeon	WP	2	2	Probable
CCA6.1	1	Wren	WR	5	2	Possible
CCA6.1	1	Willow warbler	WW	1	1	Possible
CCA6.2	2	Little tern	AF	5	8	Probable
CCA6.2	2	Blackbird	B.	4	3	Confirmed
CCA6.2	2	Chaffinch	CH	1	1	Possible
CCA6.2	2	Dunlin	DN	1	11	Possible

CCA6.2	2	Great black-backed gull	GB	1	2	Probable
CCA6.2	2	Goldfinch	GO	5	6	Probable
CCA6.2	2	Hooded crow	HC	3	2	Confirmed
CCA6.2	2	Herring gull	HG	2	12	Probable
CCA6.2	2	House sparrow	HS	1	2	Probable
CCA6.2	2	Jackdaw	JD	2	12	Probable
CCA6.2	2	Kestrel	K.	2	1	Possible
CCA6.2	2	Red kite	KT	1	1	Possible
CCA6.2	2	Lapwing	L.	1	31	Probable
CCA6.2	2	Little grebe	LG	1	1	Possible
CCA6.2	2	Linnet	LI	3	14	Probable
CCA6.2	2	Mallard	MA	3	4	Probable
CCA6.2	2	Moorhen	MH	1	1	Possible
CCA6.2	2	Meadow pipit	MP	6	2	Probable
CCA6.2	2	Mute swan	MS	3	3	Possible
CCA6.2	2	Oystercatcher	OC	6	12	Probable
CCA6.2	2	Pheasant	PH	1	1	Possible
CCA6.2	2	Robin	R.	1	1	Possible
CCA6.2	2	Reed bunting	RB	2	1	Possible
CCA6.2	2	Redshank	RK	1	3	Possible
CCA6.2	2	Ringed plover	RP	5	18	Probable
CCA6.2	2	Skylark	S.	4	3	Possible
CCA6.2	2	Shag	SA	1	11	Possible
CCA6.2	2	Stonechat	SC	2	1	Possible
CCA6.2	2	Starling	SG	1	2	Probable
CCA6.2	2	Swallow	SL	2	9	Confirmed
CCA6.2	2	Sand martin	SM	1	2	Probable
CCA6.2	2	Snipe	SN	1	1	Possible
CCA6.2	2	Shelduck	SU	6	4	Probable
CCA6.2	2	Shoveler	SV	3	7	Probable
CCA6.2	2	Sedge warbler	SW	1	2	Possible
CCA6.2	2	Teal	T.	2	2	Probable
CCA6.2	2	Sandwich tern	TE	3	5	Possible
CCA6.2	2	Turnstone	TT	1	3	Possible
CCA6.2	2	Wheatear	W.	1	2	Probable
CCA6.2	2	Wren	WR	2	2	Possible
CCA6.2	2	Willow warbler	WW	1	1	Possible

May breeding bird survey results. Species in bold indicate a QI of a European Site within the ZOI

Licence Area	Vantage Point / Transect	Species	Code	Number of records	Peak Count	Highest Breeding Status
CCA2-3	1	Cormorant	CA	3	12	Possible
CCA2-3	1	Common tern	CN	10	40	Probable
CCA2-3	1	Dunnoek	D.	1	1	Possible
CCA2-3	1	Feral pigeon	FP	1	4	Probable
CCA2-3	1	Great black-backed gull	GB	4	2	Confirmed
CCA2-3	1	Goldfinch	GO	2	6	Probable
CCA2-3	1	Gannet	GX	1	1	Possible
CCA2-3	1	Herring gull	HG	7	16	Confirmed
CCA2-3	1	Linnet	LI	2	2	Probable
CCA2-3	1	Oystercatcher	OC	2	2	Probable
CCA2-3	1	Pied wagtail	PW	1	2	Probable
CCA2-3	1	Shag	SA	1	2	Possible
CCA2-3	1	Starling	SG	2	6	Confirmed
CCA2-3	1	Shelduck	SU	2	2	Probable
CCA2-3	1	Black guillemot	TY	2	2	Probable
CCA2-3	1	Wren	WR	1	1	Possible
CCA2-3	2	Great black-backed gull	GB	1	7	Possible
CCA2-3	2	Herring gull	HG	2	8	Confirmed
CCA2-3	2	Oystercatcher	OC	1	2	Probable
CCA2-3	2	Shelduck	SU	1	3	Possible
CCA5	1	Cormorant	CA	3	12	Possible
CCA5	1	Dunnoek	D.	1	1	Possible
CCA5	1	Fulmar	F.	1	5	Possible
CCA5	1	Great black-backed gull	GB	2	5	Possible
CCA5	1	Guillemot	GU	3	40	Possible
CCA5	1	Herring gull	HG	3	30	Possible
CCA5	1	House martin	HM	1	1	Possible
CCA5	1	House sparrow	HS	2	2	Probable
CCA5	1	Kittiwake	KI	2	40	Possible
CCA5	1	Razorbill	RA	3	8	Possible
CCA5	1	Shag	SA	3	3	Possible
CCA5	1	Starling	SG	2	10	Confirmed
CCA5	1	Sand martin	SM	1	12	Probable
CCA5	1	Song thrush	ST	1	1	Possible

CCA5	1	Black guillemot	TY	1	2	Possible
CCA5	1	Whitethroat	WH	2	2	Probable
CCA5	1	Wren	WR	1	1	Possible
CCA5	1	Willow warbler	WW	1	1	Possible
CCA5	2	Cormorant	CA	2	23	Confirmed
CCA5	2	Fulmar	F.	1	5	Confirmed
CCA5	2	Great black-backed gull	GB	1	2	Probable
CCA5	2	Guillemot	GU	1	400	Possible
CCA5	2	Herring gull	HG	2	18	Confirmed
CCA5	2	Shag	SA	2	38	Confirmed
CCA5	2	Sand martin	SM	3	34	Confirmed
CCA6.1	1	Little tern	AF	3	300	Confirmed
CCA6.1	1	Buzzard	BZ	1	1	Possible
CCA6.1	1	Dunnock	D.	1	2	Probable
CCA6.1	1	Little egret	ET	1	1	Possible
CCA6.1	1	Goldfinch	GO	1	2	Probable
CCA6.1	1	Grey heron	H.	1	1	Possible
CCA6.1	1	Lapwing	L.	3	8	Confirmed
CCA6.1	1	Linnet	LI	1	2	Probable
CCA6.1	1	Meadow pipit	MP	2	2	Probable
CCA6.1	1	Mute swan	MS	2	2	Probable
CCA6.1	1	Oystercatcher	OC	7	4	Confirmed
CCA6.1	1	Reed bunting	RB	1	1	Possible
CCA6.1	1	Raven	RN	1	2	Probable
CCA6.1	1	Ringed plover	RP	6	14	Confirmed
CCA6.1	1	Skylark	S.	2	2	Possible
CCA6.1	1	Stonechat	SC	1	1	Possible
CCA6.1	1	Starling	SG	1	2	Confirmed
CCA6.1	1	Swallow	SL	3	4	Possible
CCA6.1	1	Snipe	SN	1	1	Possible
CCA6.1	1	Song thrush	ST	1	1	Possible
CCA6.1	1	Shelduck	SU	1	4	Probable
CCA6.1	1	Sedge warbler	SW	2	1	Possible
CCA6.1	1	Woodpigeon	WP	1	6	Possible
CCA6.1	1	Wren	WR	1	1	Possible
CCA6.1	1	Willow warbler	WW	1	1	Possible
CCA6.2	2	Little tern	AF	4	2	Possible
CCA6.2	2	Bullfinch	BF	1	1	Possible

CCA6.2	2	Goldfinch	GO	1	1	Possible
CCA6.2	2	Grey heron	H.	2	3	Possible
CCA6.2	2	House sparrow	HS	2	2	Confirmed
CCA6.2	2	Linnet	LI	3	2	Probable
CCA6.2	2	Mistle thrush	M.	1	1	Possible
CCA6.2	2	Meadow pipit	MP	3	2	Possible
CCA6.2	2	Oystercatcher	OC	1	1	Possible
CCA6.2	2	Ringed plover	RP	3	6	Confirmed
CCA6.2	2	Stonechat	SC	5	2	Probable
CCA6.2	2	Starling	SG	2	5	Probable
CCA6.2	2	Swallow	SL	2	2	Possible
CCA6.2	2	Sedge warbler	SW	1	1	Possible
CCA6.2	2	Whitethroat	WH	2	1	Possible

June breeding bird survey results. Species in bold indicate a QI of a European Site within the ZOI

Licence Area	Vantage Point / Transect	Species	Code	Number of records	Peak Count	Highest Breeding Status
CCA2-3	1	Arctic tern	AE	2	20	Probable
CCA2-3	1	Little tern	AF	1	2	Probable
CCA2-3	1	Cormorant	CA	5	17	Confirmed
CCA2-3	1	Common Tern	CN	4	80	Probable
CCA2-3	1	Great black-backed gull	GB	3	5	Probable
CCA2-3	1	Herring gull	HG	5	70	Confirmed
CCA2-3	1	Oystercatcher	OC	3	2	Probable
CCA2-3	1	Ringed plover	RP	1	2	Probable
CCA2-3	1	Shag	SA	1	4	Probable
CCA2-3	1	Sandwich tern	TE	1	7	Probable
CCA2-3	1	Black guillemot	TY	1	1	Possible
CCA2-3	2	Arctic tern	AE	2	1	Possible
CCA2-3	2	Cormorant	CA	2	3	Confirmed
CCA2-3	2	Fulmar	F.	2	1	Possible
CCA2-3	2	Great black-backed gull	GB	3	9	Confirmed
CCA2-3	2	Guillemot	GU	2	74	Possible
CCA2-3	2	Herring gull	HG	2	12	Confirmed
CCA2-3	2	Kittiwake	KI	1	2	Possible
CCA5	1	Blackbird	B.	1	1	Probable

CCA5	1	Blue tit	BT	1	1	Possible
CCA5	1	Cormorant	CA	9	25	Confirmed
CCA5	1	Common Tern	CN	1	1	Possible
CCA5	1	Fulmar	F.	4	8	Confirmed
CCA5	1	Great black-backed gull	GB	2	3	Possible
CCA5	1	Goldfinch	GO	5	5	Probable
CCA5	1	Guillemot	GU	9	3000	Confirmed
CCA5	1	Gannet	GX	1	3	Possible
CCA5	1	Herring gull	HG	4	9	Confirmed
CCA5	1	House sparrow	HS	2	20	Possible
CCA5	1	Kittiwake	KI	4	19	Confirmed
CCA5	1	Meadow pipit	MP	1	1	Probable
CCA5	1	Razorbill	RA	8	100	Confirmed
CCA5	1	Skylark	S.	2	1	Probable
CCA5	1	Stonechat	SC	1	3	Probable
CCA5	1	Swift	SL	1	20	Possible
CCA5	1	Sand martin	SM	2	200	Possible
CCA5	1	Woodpigeon	WP	1	2	Possible
CCA5	1	Wren	WR	1	1	Probable
CCA6.1	1	Little tern	AF	8	600	Confirmed
CCA6.1	1	Blackbird	B.	1	1	Probable
CCA6.1	1	Bar-tailed godwit	BA	2	2	Non-breeding
CCA6.1	1	Bullfinch	BF	1	1	Probable
CCA6.1	1	Black-headed gull	BH	2	9	Probable
CCA6.1	1	Black-tailed godwit	BW	1	2	Possible
CCA6.1	1	Cormorant	CA	1	2	Possible
CCA6.1	1	Little egret	ET	2	2	Probable
CCA6.1	1	Great black-backed gull	GB	1	4	Possible
CCA6.1	1	Goldcrest	GC	1	1	Possible
CCA6.1	1	Greenshank	GK	1	1	Possible
CCA6.1	1	Goldfinch	GO	1	3	Possible
CCA6.1	1	Great tit	GT	1	1	Possible
CCA6.1	1	Grey heron	H.	1	1	Possible
CCA6.1	1	Herring gull	HG	1	14	Possible
CCA6.1	1	House martin	HM	1	10	Possible
CCA6.1	1	House sparrow	HS	1	4	Possible
CCA6.1	1	Lapwing	L.	2	4	Confirmed
CCA6.1	1	Little grebe	LG	2	3	Probable

CCA6.1	1	Linnet	LI	1	2	Probable
CCA6.1	1	Mallard	MA	2	1	Probable
CCA6.1	1	Meadow pipit	MP	2	1	Possible
CCA6.1	1	Mute swan	MS	1	2	Possible
CCA6.1	1	Oystercatcher	OC	8	1	Confirmed
CCA6.1	1	Pied wagtail	PW	2	2	Probable
CCA6.1	1	Redshank	RK	1	3	Probable
CCA6.1	1	Ringed plover	RP	3	1	Confirmed
CCA6.1	1	Reed warbler	RW	1	1	Probable
CCA6.1	1	Skylark	S.	5	2	Probable
CCA6.1	1	Stonechat	SC	2	2	Probable
CCA6.1	1	Starling	SG	3	30	Probable
CCA6.1	1	Swift	SI	1	10	Possible
CCA6.1	1	Sand martin	SM	1	10	Possible
CCA6.1	1	Snipe	SN	1	2	Probable
CCA6.1	1	Song thrush	ST	1	1	Probable
CCA6.1	1	Shelduck	SU	3	2	Probable
CCA6.1	1	Sedge warbler	SW	2	1	Probable
CCA6.1	1	Sandwich tern	TE	1	2	Possible
CCA6.1	1	Whitethroat	WH	1	1	Probable
CCA6.1	1	Whimbrel	WM	1	1	Possible
CCA6.1	1	Wren	WR	2	1	Probable
CCA6.1	1	Willow warbler	WW	1	1	Probable
CCA6.2	2	Little tern	AF	3	5	Confirmed
CCA6.2	2	Goldfinch	GO	1	10	Possible
CCA6.2	2	Gannet	GX	1	1	Confirmed
CCA6.2	2	Grey heron	H.	1	1	Possible
CCA6.2	2	House martin	HM	1	2	Possible
CCA6.2	2	House sparrow	HS	1	10	Confirmed
CCA6.2	2	Linnet	LI	2	2	Possible
CCA6.2	2	Meadow pipit	MP	1	1	Possible
CCA6.2	2	Pied wagtail	PW	1	1	Probable
CCA6.2	2	Skylark	S.	3	1	Confirmed
CCA6.2	2	Stonechat	SC	1	5	Possible
CCA6.2	2	Starling	SG	1	20	Confirmed
CCA6.2	2	Whitethroat	WH	1	1	Probable