Natura Impact Statement

Balbriggan Harbour Maintenance Dredging

Report No. M1104-AYE-R-ENV-01

13 February 2026

Revision 04

Fingal County Council

Comhairle Contae Fhine Gall
Fingal County Council

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Project

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Client

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Document

Natura Impact Statement

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[1] Introduction

[1.1] Project Background

Ayesa Ecologists have been commissioned to undertake a Natura Impact Statement (NIS) for a planning application for the proposed maintenance dredging works on Balbriggan Harbour, Fingal, County Dublin (henceforth, “the proposed development”). This report has been completed on behalf of the client, Fingal County Council (FCC).

The location of the proposed site is shown in Figures 1-1 and 1-2 below.

Figure 1-1: Location of Balbriggan, Fingal, Co. Dublin.

Figure 1-2: Aerial view of Balbriggan Harbour wherein the proposed works will take place.

[1.2] Project Setting

Balbriggan Harbour, built between 1760 and 1790 at the mouth of the Bracken River north of Dublin, has evolved over 250 years. It features two main piers—the East Pier (original harbour/sea wall) and the West Pier with its extension—along with slipways, stairways, a lighthouse, and other structures. The Ballast Pier divides the Outer and Inner Harbours. Sheltered from southerly and westerly waves, the harbour accommodates fishing vessels (up to 18 m) and leisure craft, primarily in the Inner Harbour. The West Pier hosts storage containers for fishermen, while the quaysides are used for both fishing activities and public access. Balbriggan Harbour can be viewed below in Figure 1-3.

[1.3] Sediment Assessment

A sediment sampling campaign was undertaken by Hydro Survey Limited (HSL) in January 2024 to inform the dredging assessment for Balbriggan Harbour (see Dredging Assessment Report No. CM1407-MA-RP-002). Fourteen sediment samples (seven surface and seven sub-surface) were successfully collected across eleven locations within the harbour basin. Analyses included particle size distribution and testing for potential contamination in accordance with Marine Institute (MI), RILTA, and Waste Acceptance Criteria (WAC) suites.

The harbour sediments are composed primarily of sand and gravel, with some silt, clay, and cobble material present, particularly along the original pier. Contaminant testing assessed sediment suitability for both disposal at sea and on land.

Under the MI classification system for disposal at sea, sediments are grouped into three classes based on contaminant concentrations:

- Class 1 – contaminant levels below the lower threshold (material generally suitable for disposal at sea);
- Class 2 – contaminant levels between the lower and upper thresholds (may be acceptable following further assessment); and
- Class 3 – contaminant levels above the upper threshold (not suitable for disposal at sea).

Results from the MI suite indicated that the majority of samples were Class 3, exceeding the upper contaminant limits for dumping at sea; only two samples fell within Class 1 or 2 thresholds. Consequently, dumping at sea is not considered a feasible disposal option.

RILTA and WAC testing showed that most material within the basin is non-hazardous, falling within Waste Categories B or C. However, four samples were classified as hazardous (Category D), indicating the presence of localised areas of contaminated sediment requiring disposal at appropriately licensed facilities. These hazardous areas are relatively concentrated within the harbour basin, limiting the spatial extent of contamination.

Overall, the majority of dredged material is suitable for disposal at licensed landside facilities, while any hazardous material will require specialist handling and treatment prior to disposal. Further sampling and delineation of contamination zones will be undertaken by the Contractor prior to, during, and after dredging to confirm sediment classifications and ensure compliance with environmental regulations.

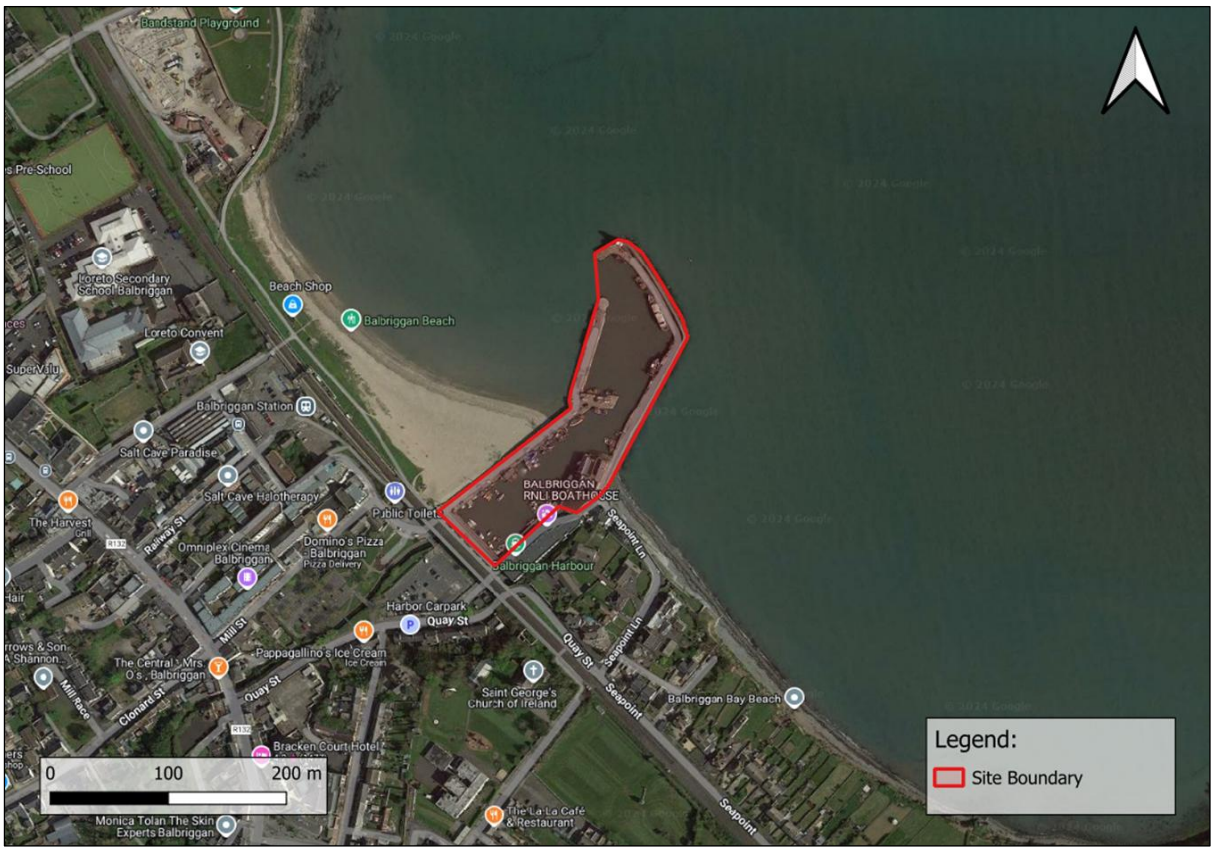

Figure 1-3: Aerial view of the Balbriggan Harbour Works Site Boundary.

[1.4] Proposed Works

The scope for the maintenance dredging works at Balbriggan Harbour comprises of the works described in the following sections. The appointed contractor will determine the final dredging methodology; however, it is anticipated that dredging will take place at lower tidal levels when the harbour basin has naturally dried out, using appropriate excavation plant.

The project footprint is confined to the existing dredged harbour area, extending across approximately 1.4ha (combined inner and outer basins). All activities will be undertaken within the existing harbour infrastructure, with no encroachment beyond the established navigation limits.

The structures comprising the harbour are depicted below in Figure 1-4.

[1.4.1] Proposed Plant

To undertake the proposed maintenance dredging works, the plant expected to be used within the works methodology is as follows:

- 25 m LOA (approx.) hopper barge;
- Tugboat;
- Pontoon barge;
- Long-reach excavator;
- Sealed arctic haulage trucks.

This list is not exhaustive, as the final list of required plant will ultimately be dictated by the appointed contractor's methodology. This does, however, serve as the preliminary list of expected plant for the works.

[1.4.2] Dredging Methodology

The appointed contractor will determine the final dredging methodology; however, it is anticipated that the works will be carried out using an excavator positioned on a pontoon barge or from the quayside, which will deposit dredged material directly into the hopper barge. It is expected that the maintenance dredging will progress from the outer areas towards the inner sections of the harbour basin.

To optimise efficiency and minimise water content in the dredged material, dredging will be undertaken during lower tides when the harbour basin has naturally dried out. It should be noted that all areas to be dredged will naturally dry out during lower tides. The dredged material is expected to remain in the barge for drying, with periodic mechanical disturbance by the excavator to aid the drying process, supplemented by air drying as required.

Once sufficiently dried, it is anticipated that the material will be loaded into sealed trucks and transported to a licensed disposal facility in accordance with regulatory requirements.

The dredging works are expected to extend over an approximate duration of 12 weeks, with operations potentially continuing on a 24-hour basis to accommodate tidal cycles and minimise disruption to harbour users.

Indicative dredging volumes are to be confirmed but estimated at approximately 8,000–10,000 m^3 of material, comprising predominantly fine to coarse sands, gravels, and silts. The dredging

depth will generally extend to –2.5 m Chart Datum, consistent with historical maintenance records.

[1.4.3] Drying Methodology

The final material drying methodology will be determined by the appointed contractor; however, it is expected that all drying will be achieved through natural air-drying within the barge. At this stage additional chemical or mechanical processes are not anticipated.

Material will likely be considered sufficiently dry once its moisture content is below 20% and the haulage contractor confirms it is safe for transport. The final moisture content will be stipulated by the haulage contractor.

Disposal is expected to be at a suitably licensed landside facility, with the final selection of the disposal site being the responsibility of the appointed contractor in compliance with regulatory requirements.

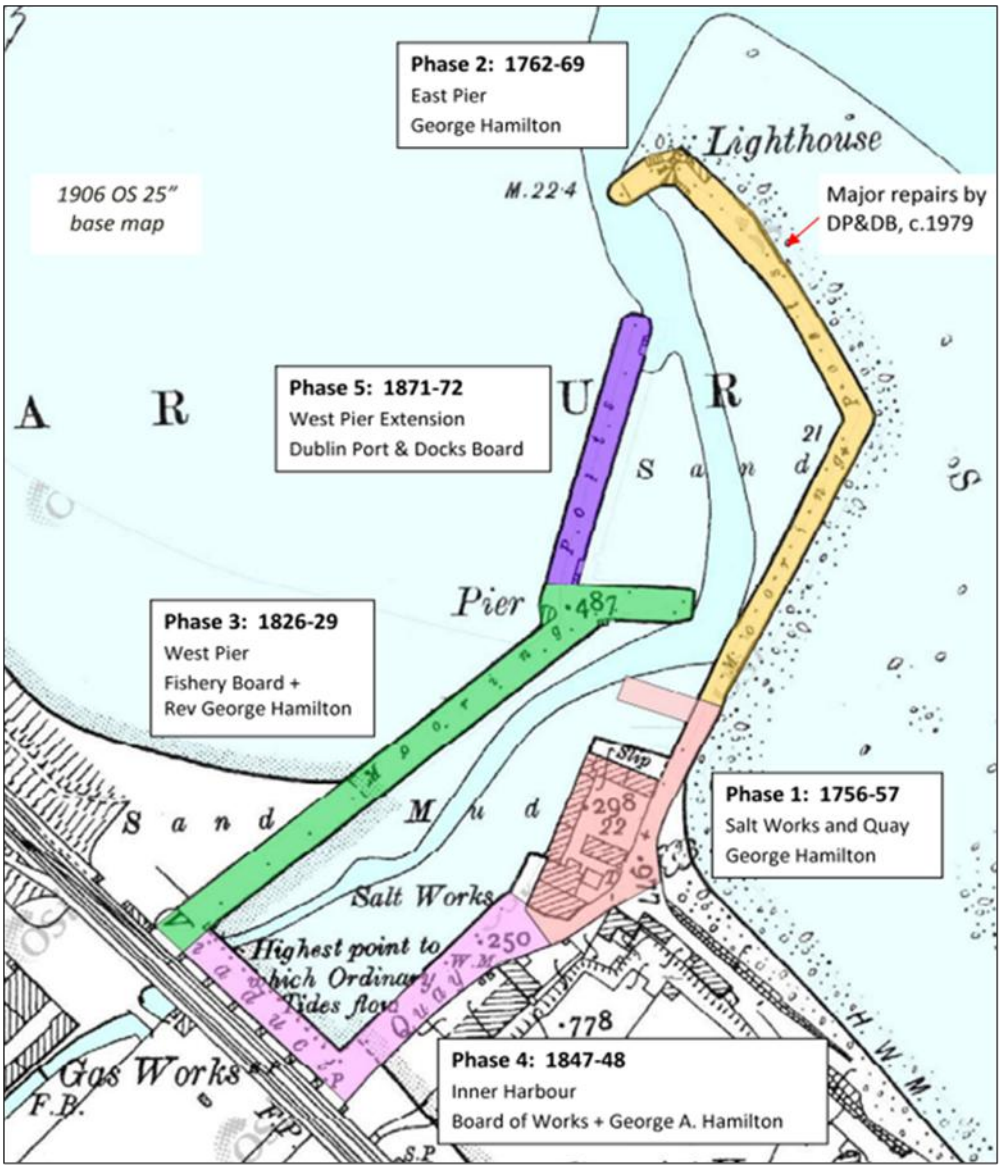

Figure 1-4: Map of structures at Balbriggan Harbour, Co. Dublin.

[1.5] Purpose of Report

This report contains information pertaining to Natura Impact Statement (NIS), undertaken by Ayesa, in respect of the proposed Balbriggan Harbour Maintenance Dredging Works. This report has been prepared in accordance with the requirements of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477/2011), as amended. The preparation of this NIS report is in alignment with the conclusions of the AA Screening report prepared by Ayesa (report no. M1104-AYE-R-ENV-00). The AA Screening report was prepared in accordance with the EU Habitats Directive which considered the likelihood of significant effects to nearby/connected European Sites from the proposed maintenance dredging works. The AA screening determined that there was a likelihood for significant effects to occur and, consequently, this NIS is required.

The primary purpose of this report is to provide relevant material to inform a decision by the Competent Authority, as required under Articles 6.3 and 6.4 of the EU Habitats Directive, as to whether the proposed dredging is likely to have any significant impacts on the Conservation Objectives of a European site. Where there are potential adverse impacts, an assessment of the potential mitigation of those impacts is presented.

[1.6] Preparation of this Report

The following specialists have contributed to the preparation of this report.

Table 1-1: Summary of Staff Qualifications.

Title	Name	Role	Qualifications	Years' experience
Senior Ecologist	Jeff Hean	Survey preparation and survey assessment	Ph. D in Zoology IES Member	10
Ecologist	Meadhbh Stack	Report preparation and survey assessment	BSc (Hons) Ecology & Environmental Biology CIEEM: Qualifying Membership	3
Senior Ecologist	Maran Lowry	Review	BSc (Hons) Marine Biology	10
Ecologist	Joe Butler	Review	M.Sc. in Wildlife Conservation and Management B.Sc. (Hons.) in Zoology CIEEM: Qualifying Membership	6

[2] Appropriate Assessment Process

[2.1] Process

The AA process is a sequential process consisting of four potential stages. If at the first stage in the process it is determined that there will be no significant effect on a European Site, the process is effectively completed. The four stages are as follows:

- **Stage 1** – Screening of the proposed plan or project for AA.
- **Stage 2** – An AA of the proposed plan or project (current stage).
- **Stage 3** – Assessment of alternative solutions; and
- **Stage 4** – Imperative Reasons of Overriding Public Interest (IROPI)/ Derogation.

Stage 1 relates to Regulation 42 of the Birds and Natural Habitats Regulations; and Stage 2 relates to Article 6(3) of the Habitats Directive; and Stages 3 and 4 to Article 6(4) of the Habitats Directive.

[2.1.1] Stage 1: Screening

The aim of screening is to assess if the plan or project is directly connected with or necessary to the management of European Site Site(s); or on the basis of best scientific knowledge, if the plan or project, individually or in combination with other plans or projects, is likely to have a significant effect on a European Site. This is done by examining the proposed plan or project and the conservation objectives of any Sites that might potentially be affected. If screening determines that there are likely to be significant effects, or the significance of effects is uncertain or unknown then it will be recommended that a project is brought forward to full AA.

[2.1.2] Stage 2: Appropriate Assessment (current stage)

The aim of Stage 2 of the AA process is to identify any adverse likely significant effects that the plan or project might have on the integrity of relevant European Sites. As part of the assessment, a key consideration is 'in combination' effects with other plans or projects. Where adverse likely significant effects are identified, mitigation measures can be proposed that would avoid, reduce, or remedy any such negative likely significant effects and the plan or project should then be amended accordingly, thereby avoiding the need to progress to Stage 3.

[2.1.3] Stage 3: Assessment of Alternative Solutions

If it is not possible during the stage 2 to reduce likely significant effects to acceptable, non-significant levels by avoidance and/or mitigation, stage 3 of the process must be undertaken which is to objectively assess whether alternative solutions exist by which the objectives of the plan or project can be achieved. Explicitly, this means alternative solutions that do not have significant negative likely significant effects on the integrity of a European Site. It should also be noted that EU guidance on this stage of the process states that 'other assessment criteria, such as economic criteria, cannot be seen as overruling ecological criteria' [1]. In other words, if alternative solutions exist that do not have negative likely significant effects on European Sites; they should be adopted regardless of economic considerations.

[2.1.4] Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)/Derogation

This stage of the AA process is undertaken when it has been determined that negative likely significant effects on the integrity of a European Site will result from a plan or project, but that no alternatives exist. At this stage of the AA process, it is the characteristics of the plan or project itself that will determine whether the competent authority can allow the plan or project to progress. This is the determination of 'over-riding public interest'. It is important to note that in the case of European Sites that include in their qualifying features' priority' habitats or species, as defined in Annex I and II of the Directive, the demonstration of 'overriding public interest' is not sufficient and it must be demonstrated that the plan or project is necessary for 'human health or safety considerations'. Where plans or projects meet these criteria, they can be allowed, provided adequate compensatory measures are proposed. Stage 4 of the process defines and describes these compensation measures.

[2.2] Process for Stage 2: Appropriate Assessment

This NIS has been completed in the following logical order:

- Definition of the zone of influence for the proposed works (completed at Screening stage);
- Identification of the most up-to-date Qualifying Interests (QIs) and Special Conservation Interests (SCIs) for each European Site occurring either wholly or partially within the zone of influence (completed at Screening stage);
- Identification of other plans or projects, for which In-combination impacts would likely have significant effects (completed at Screening stage);
- Identification of the Conservation Objectives (and Targets set to meet these) required to maintain the QIs/SCIs at the desired target of Favourable Conservation Status;
- Identification of the effects – actual or potential that could negatively affect the Conservation Objectives of the QIs/SCIs within the European Sites;
- Identification of mitigation measures for any likely significant effects.

The following issues have been considered:

- The nature and quality of habitats within the site of the proposed development;
- Information relating to the ecology of the European Sites, including the statuses of QIs/SCIs and the relevant conservation status and objectives for these species;
- The scale and nature of the aspects of the project in relation to the European Sites.

[2.3] Legislative Background and Guidance Documents

[2.3.1] International Legislation

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as the "Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known an EU-wide network of sites known as Natura 2000 sites or European Sites (as they are referred to in this document). These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas

(SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European Sites (Annex 1.1). Article 6(3) establishes the requirement for AA screening.:

"Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In 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 [European] 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 sites is protected. It shall inform the Commission of the compensatory measures adopted."

[2.3.2] The Requirement for AA Screening

Section 42 (1) of S.I. No. 477 of 2011, the European Communities (Birds and Natural Habitats) Regulations 2011 states:

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

Where the screening process cannot exclude the possibility that a plan or project, individually or in combination with other plans or projects, could have a significant effect on a European site, there is a requirement under Article 42 (9) of these Regulations for the preparation of a Natura Impact Statement to inform the Appropriate Assessment process.

[2.3.3] Screening Determination

In accordance with Regulation 42(7) of the Birds and Natural Habitats Regulations 2011 (S.I. No. 477/2011) as amended:

"*The public authority shall determine that an Appropriate Assessment of a plan or project is not required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it can be excluded on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.*"

Further, under Regulation 42(8):

"*(a)Where, in relation to a plan or project for which an application for consent has been received, a public authority decides that an Appropriate Assessment is required, the public authority shall give notice of the determination, including reasons for the determination of the public authority, to the following—*

- *the applicant,*
- *if appropriate, any person who made submissions or observations in relation to the application to the public authority, or*
- *if appropriate, any party to an appeal or referral.*

(b) Where a public authority has determined that an Appropriate Assessment is required in respect of a proposed development it may direct in the notice issued under subparagraph (a) that a Natura Impact Statement is required."

[2.3.4] National Legislation

The Habitats Directive has been transposed into Irish law by Part XAB of the Planning and Development Act, 2000 - 2015 and the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011) as amended.

[2.3.5] Guidance Documents on Appropriate Assessment

Where an AA is necessary, the AA requirements of Article 6(3) of the Habitats Directive 92/43/EEC (European Communities 2001) follow a sequential approach as outlined in the following guidance documents:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. Department of Environment, Heritage, and Local Government, 2010 revision.
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 and PSSP 2/10.
- Assessment of Plans and Projects Significantly Affecting European Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2002).
- Managing European Sites: The provisions of Article 6 of the Habitat's Directive 92/43/EEC Commission Notice (European Commission Environment Directorate-General, 2018).
- Guidelines for Good Practice Appropriate Assessment of Plans Under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011).
- The Department of the Environment, Heritage, and Local Government guidance *"Appropriate Assessment of Plans and Projects in Ireland – guidance for Planning Authorities, 2009" and the European Commission (2001) guidelines "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".*
- Appropriate Assessment Screening for Development Management (OPR, March 2021).

[3] Methodology

[3.1] Development Site Habitat Assessment Methods

A general assessment of the site was carried out. The site assessment was in line with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping and habitats were classified to level 3 of the Fossitt (2000) classification system. To illustrate the general habitat quality, photographs were taken using a digital camera. Site evaluation is based on the guidelines of the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

[3.2] Alien Invasive Species

The site and immediate surroundings were inspected for the presence of invasive species, as listed in the First Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended. Regulation 49(2) of these Regulations states that *"any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place any plant listed in the First Schedule shall be guilty of an offence."* The determination of the presence or absence of Annex I habitats was carried out in consultation with the habitat descriptions provided in the most recent Article 17 Reports. The Interpretation Manual of European Union Habitats (EUR 28, April 2013) was also consulted. In addition, the spatial GIS data for the Article 17 Reports were examined to determine the distribution of these habitats (as known to the NPWS) within the study area. [1]

All surveys were completed by qualified specialists and in accordance with relevant legislation, particularly the "Guidelines for Ecological Impact Assessment in the UK and Ireland" through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance.

[3.3] Wintering Bird Survey

The wintering bird survey methodology carried out by Ayesa for this site was designed in accordance with guidance described in:

- Bird Census Techniques (Bibby, *et al*., 2000).
- 'The Birds of Ireland – A Field Guide' (Jim Wilson, 2024).
- I-WeBS best practice guidelines of standard techniques for traditional ground surveying are the recommended methods by Bird Watch Ireland.

Precautionary measures were taken to ensure minimal/no disturbances were imposed on the feeding/roosting habitats of wintering birds present. Care was taken at all times to avoid flushing any species within the sampling sites, with previously researched vantage point locations with recommended distances and wintering waterbird species-specific responses to human disturbances.

[1] https://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf

Celestron 71007 SkyMaster 12 x 60 Binoculars were used to view and identify bird species at each survey point. Identification of bird species was achieved with the identification guide, 'The Birds of Ireland – A Field Guide' (Jim Wilson, 2024).

Two surveys of the site were carried out over two site visits on 15/01/25 and 27/03/25. Counts began in the morning and one hour before or after low tide so that they coincide with maximum bird activity but avoided concentrated song activity at dawn (BTO, 2023). The Ayesa ecologists identified four stationary observation points located adjacent to and within the site from which to carry out the point counts/surveys, whilst continuing to record birds between the vantage points.

The ecologists stayed at each stationary location for 20 minutes continuously scanning the surrounding areas using binoculars, and all bird species observed were recorded. Information regarding the species of bird, number of birds (of the same species) and the birds' behaviour was similarly noted. The Countryside Bird Survey (CBS) Manual (Birdwatch Ireland, 2012) recommends sightings to be grouped into distance bands (perpendicular to and either side of the transect line), however this was deemed unnecessary on this occasion as no distance sampling analysis will be undertaken. The primary purpose of this survey was to identify which species utilise the site and the surrounding areas, not to provide accurate counts for population trends as in the CBS.

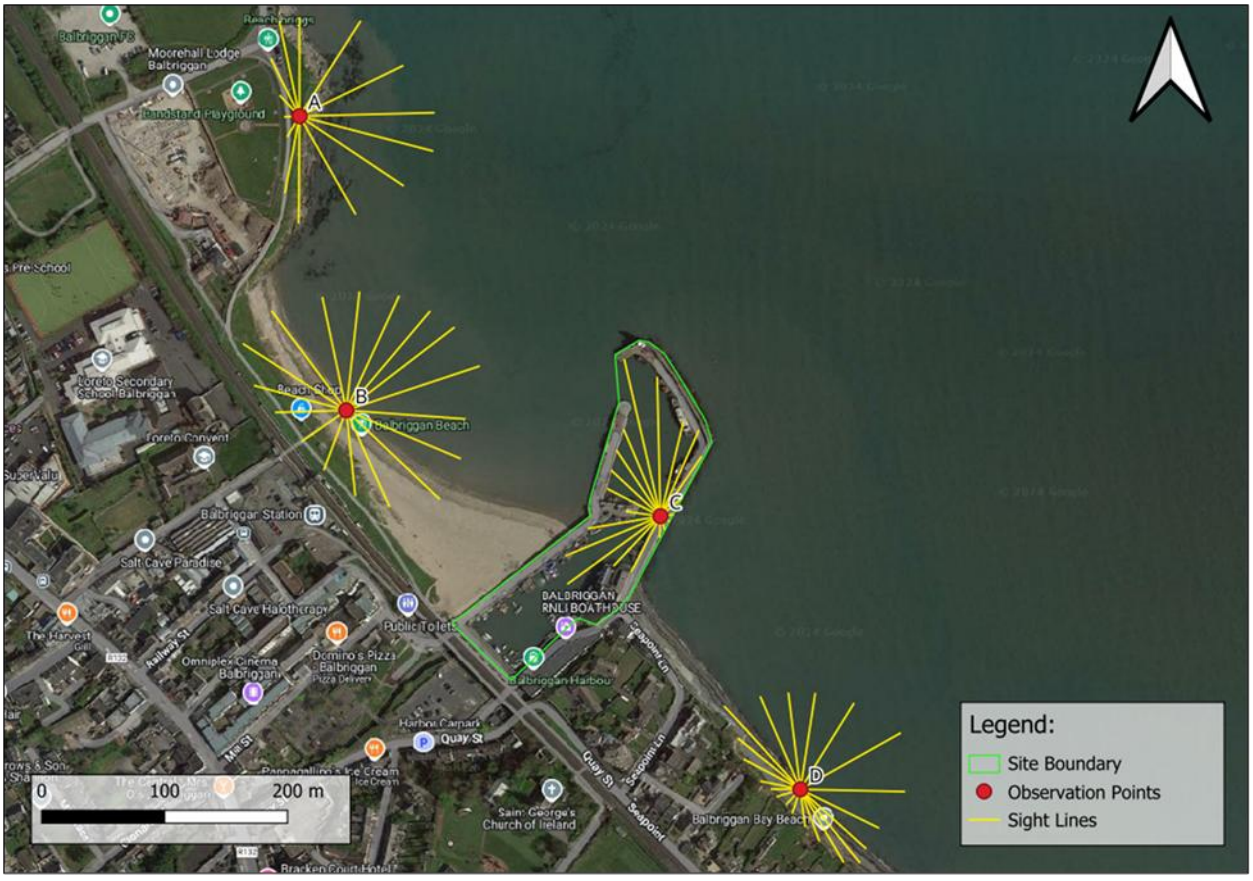

Figure 3-1: Wintering Bird Survey Observation Point Locations.

Aural recordings were also obtained using the app BirdNET. BirdNET's in-app machine learning was used to determine species. According to Kahl et al. (2021), BirdNET has a mean average precision of 0.791 for single-species recordings. Despite the high level of confidence, the ecologist compared aural records obtained in the field to existing records to add a higher level of certainty to species identification.

Weather conditions within the project site were recorded at the time of survey. Activities that occur at the site that cause or have the potential to cause disturbance to waterbirds were also recorded, regardless of whether they caused a noticeable disturbance to birds at the time of observation.

The species observed onsite were cross-referenced with the current list of Birds of Conservation Concern in Ireland (BoCCI), as well as the species listed in the Annexes of the EU Birds Directive (2009/147/EC) (EC, 2009). Based on their observed behaviour and their location in relation to the proposed project footprint, a determination was made as to the nature of their relationship with the site, i.e., whether they utilise the site for nesting and/or foraging purposes. It is noted that all species of wild birds are protected under Section 22 of the Wildlife Act (No. 39 of 1976) and its amendments. In the context of the proposed works, this prohibits the destruction or disturbance of nests and/or eggs of wild birds (in the absence of a derogation licence).

Based on qualitative data on species populations and distributions, BoCCI comprises lists of priority birds so that resources can be effectively allocated for their conservation. The system follows a traffic light system (i.e. Red, Amber, and Green), with red being the highest conservation priority. Some of the criteria, which may trigger a species to be Red or Amber-listed, reflect global or European status regardless of how the species is faring in Ireland. It is important to have this wider context in status assessments to ensure protection of populations that are declining elsewhere in their range.

[3.4] Desktop Information Consulted for this Report

Published information and biological records from within the study area were researched during the desk-based study to establish presence/absence of protected flora and fauna (of local, national, and international conservation importance), and designated sites (Natura 2000 Sites) of habitats/species of special conservation interests.

The desk study included a comprehensive review of information and data available for the existing environment. The following principal sources of information referred to during the desk study included:

- National Parks and Wildlife Service (NPWS); site synopses and conservation objectives for relevant European Sites (accessible at https://www.npws.ie/)
- Article 17 Reports (NPWS, 2019)
    - GIS spatial data for Article 17 Reports[2]
- 2019 Spatial data for breeding distributions and ranges of bird species protected under Article 12 of the Bird Directive (79/409/ECC) (NPWS, 2019a)
- 2019 Spatial data for habitats (Annex I) and species (Annexes II, IV and V) protected under Article 17 of the Habitats Directive (92/43/EEC) (NPWS, 2019b)
- National Biodiversity Data Centre (NBDC) – 1 km-square species reports (accessed online on 22/04/2025)

[2] https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17

- Birds of Conservation Concern in Ireland (BoCCI). Species list of bird species outlines for conservation efforts 2020-2026. https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/
- The status of EU Habitats and Species in Ireland 2013, NPWS, ed. D. Lynn

[3.5] Cumulative and In-Combination Effects

It is a requirement of screening for Appropriate Assessment that the cumulative or in-combination effects of the proposed development together with other plans or projects are assessed. Cumulative likely significant effects can be defined as a project/plan/programme likely to have a significant effect thereon, either individually or in combination with other plans or projects.

In accordance with EC Article 6 Guidance Document (EC 2018), in order to ensure all likely significant effects upon the site are identified, including those direct and indirect likely significant effects that are a result of cumulative likely significant effects, the following steps were completed:

- Identify all projects/ plans which might act in combination: Identify all possible sources of effects from the project or plan under consideration, together with all other sources in the existing environment and any other effects likely to arise from other proposed projects or plans.
- Identification of sources of likely significant effects: Identify the types of significant effects that are likely to affect aspects of the structure and functions of the site vulnerable to change.
- Define the boundaries for assessment: define boundaries for examination of cumulative effects which will be different for different types of likely significant effects and may include remote locations.
- Pathway identification: Identify potential cumulative pathways (e.g. via water, air etc.; accumulations of effects in time or space).
- Prediction: Prediction of magnitude/extent of identified likely cumulative effects.
- Assessment: Comment on whether or not the potential cumulative effects are likely to be significant.

[3.6] Source-Pathway-Receptor (SPR) Model

The likely effects of the proposed development on any European Site have been assessed using a source-pathway-receptor model, where:

- A ‘source’ is defined as the individual element of the proposed works that has the potential to impact on a European Site, its qualifying features, and its conservation objectives.
- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor. Pathways are established by surface water, groundwater, and land and air.

- A ‘receptor’ is defined as the Special Conservation Interests (SCIs) of SPAs or Qualifying Interests (QIs) of SACs for which conservation objectives have been set for the European Sites being screened.

This methodology is based on source > pathway > receptor chain principles and involves assessing likely significant effects on European Sites within the ZoI of the proposed drainage maintenance in relation to three pathways: 1) surface water 2) land and air 3) groundwater. The screening assessment involves assessing the impacts of maintenance dredging works within Balbriggan Harbour and the ZoI in relation to each of the three pathways individually.

Where a source-pathway-receptor link between the proposed development and a European site exists, and there is a potential negative effect, further assessment is required. This assessment is undertaken in accordance with EC Article 6 Guidance Document (EC, 2018b) outlined in previous sections.

The screening process uses a combination of GIS analysis and qualitative assessment to identify how the harbour dredging works, are likely to have significant effects on the integrity of European Sites. This screening report has been produced with currently available information, with the most up-to-date versions used.

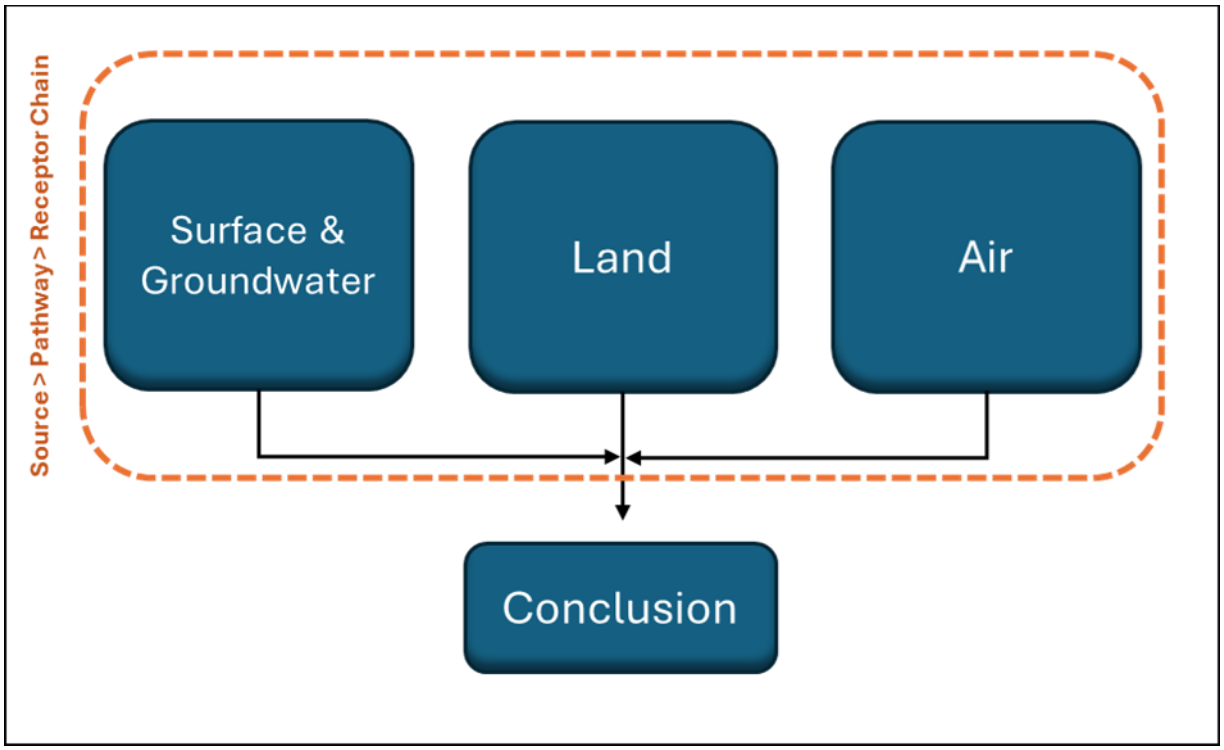

Figure 3-2: Source-Pathway-Receptor assessment process.

[3.6.1] Zone of Influence (ZoI)

The 'zone of influence' for a project is defined as "the area over which ecological features may be affected by biophysical changes because of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries" (CIEEM, 2019). Subsequently, the zone of influence (ZoI) will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018). A practice note issued by the Office of the Planning Regulator (OPR, 2021) states that, "The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have

significant effects on the Qualifying Interests of a European site. This should be established case-by-case using the Source-Pathway-Receptor framework and not by arbitrary distances (such as 15 km)".

The ZoI for this project was identified through a review of the nature of the project and duration of the works, the type of likely significant effects, the distance between the project and European sites, and the qualifying interests of each the European sites. In the instance of this proposed development, the dredging works will have a moderate footprint on the seabed within the harbour and short duration times. Additionally, potential significant effects stemming from the proposed dredging works have been considered in the current context of Balbriggan Harbour, which experiences daily marine vessel and human traffic. The majority of impacts will occur within the immediate vicinity of the works (<500 m). However, some effects may be transmitted further afield.

The SACs are designated for mobile marine mammal species, while SPAs are designated for bird species which are highly mobile. Bird screening distances will be assessed on a case-by-case basis, as different species have different foraging ranges. There is evidence that Red-throated Diver (*Gavia stellata*), which are highly sensitive to disturbance from human activities, are likely disturbed at distances of up to 1000 m (NatureScot, 2022). Potential impact pathways causing bird disturbance may include but are not limited to construction and agricultural activities, on a precautionary basis, this distance is used for screening sites for land impacts. For noise, vibration, and visual disturbance, impacts on species can occur at some distance. The TIDE toolkit suggests 500 m is a useful precautionary distance (Cutts et al. 2013), although the scientific basis for this remains uncertain (Williams et al. 2020).

At the coast and in tidal and transitional waterbodies, marine species may also be found outside of their core SAC boundaries. Although by definition the SAC provides the core area of their habitat, scheme channels may form part of the supporting habitat for mobile aquatic species. Grey and Harbour seals are known to forage long distances from haul out sites (Cronin, 2011) (Kiely et al., 2000). In marine and transitional waters, a precautionary distance of 15 km is used to account for marine mammal movements.

Effects transmitted through surface water can be carried considerable distances, although the dilution effect within surface water significantly reduces effects across greater lengths. Dredging works will not introduce new suspended solids to the system but rather mobilise sediment that is settled within the harbour floor. There is no published evidence on how quickly any suspended solids released during dredging activities remain at levels that would negatively affect wildlife, but based on experience and professional opinion, sediment plumes can extend up to 10–15 kilometres from the dredging site, depending on tidal movements and water column stratification. As the works will be undertaken during lower tides when the harbour basin has naturally dried out, sedimentation impacts are suspected to localised due to reduced tidal flow and lower water volumes. However, a precautionary distance of 5 km is used for screening of sites for surface water quality effects.

[3.6.2] Assessment of Likelihood of Significant Effects

In assessing the likelihood of the occurrence of significant effects, the logic is as follows:

- The conditions necessary for a significant effect are considered.
- The likelihood of that effect is assessed, considering the process/emission magnitude, duration, timing and frequency, as well as the connectivity with the proposed project site and the sensitivity of the QI/SCI to the process/emission in question.

The below definitions are relevant at this Stage 1 Appropriate Assessment Screening stage:

- Likely Significant Effect - Where a plan or project is likely to undermine any of the site's conservation objectives.
- Possible Significant Effect - Where a plan or project has an indicated potential to undermine any of the site's conservation objectives but where doubt exists about the risk of a significant effect in the current context. Nevertheless, where doubt exists about the risk of a significant effect, use of the precautionary principle requires this effect to be considered appropriately within the Article 6 assessment process.

It should be noted that this report has taken account the overturning (May 2023) of the 2017 ECJ ruling (C-323/17 - People Over Wind and Peter Sweetman v Coillte), whereby "*Article 6(3) of Directive 92/43 must be interpreted as meaning that: in order to determine whether it is necessary to carry out an appropriate assessment of the implications of a plan or project for a site, account may be taken of the features of that plan or project which involve the removal of contaminants and which therefore may have the effect of reducing the harmful effects of the plan or project on that site, where those features have been incorporated into that plan or project as standard features, inherent in such a plan or project, irrespective of any effect on the site*".

[4] Results

[4.1] Development Site Habitats

The site of the proposed works is located within the Balbriggan Harbour, Fingal, Co. Dublin. The coastal town of Balbriggan dominates the surrounding landscape and is a moderately built-up area. The terrestrial habitat assemblage surrounding the proposed development site is dominated by Buildings and Artificial Surfaces (BL3) which is comprised of roads, residential and commercial properties, harbour quays, piers and berths. The harbour is comprised of concrete and other hard surfaces (BL3) and is surrounded by Open Marine Water (MW4). The beach to the North of the harbour is categorised as Muddy Sand Shore (LS3) while the habitats located to the South consist of a Mixed Substrata Shore (LR4) and Sedimentary Sea Cliffs (CS3). The landscape to the west and south of the site comprises Amenity Grassland (GA2), Grassy Verges (GS2), Hedgerows (WL1), and Treelines (WL2). Habitat photographs can be viewed in Appendix A.

No botanical species protected under the Flora (Protection) Order 2015, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC), or listed as species of conservation concern in Ireland were recorded within the study site. All species recorded during the botanical survey are considered common for similar habitats in the general area.

[4.2] Alien Invasive Species

Under Regulation 49(2) of S.I. No. 477 of 2011, the *European Communities (Birds and Natural Habitats) Regulations 2011*, as amended by S.I. No. 303 of 2023, it is an offence to plant, disperse, allow or cause to disperse, spread, or otherwise cause to grow in any place any plant species included in Part 1 of the First Schedule of these Regulations.

No alien invasive plant species (as listed in the First Schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011*, as amended) were identified within the proposed development site or its immediate surroundings.

[4.3] Birds

[4.3.1] Desktop Results

The NBDC maintains a database of wildlife records across the entire country. The land area is divided into 10-km squares, which are further divided into 2-km and 1-km squares. Records for all bird species were retrieved from the 1 km grid squares O2063 and O2064, in which Balbriggan Harbour is located. The 1 km grid squares O2063 and O2064 can be viewed below in Figure 4-1.

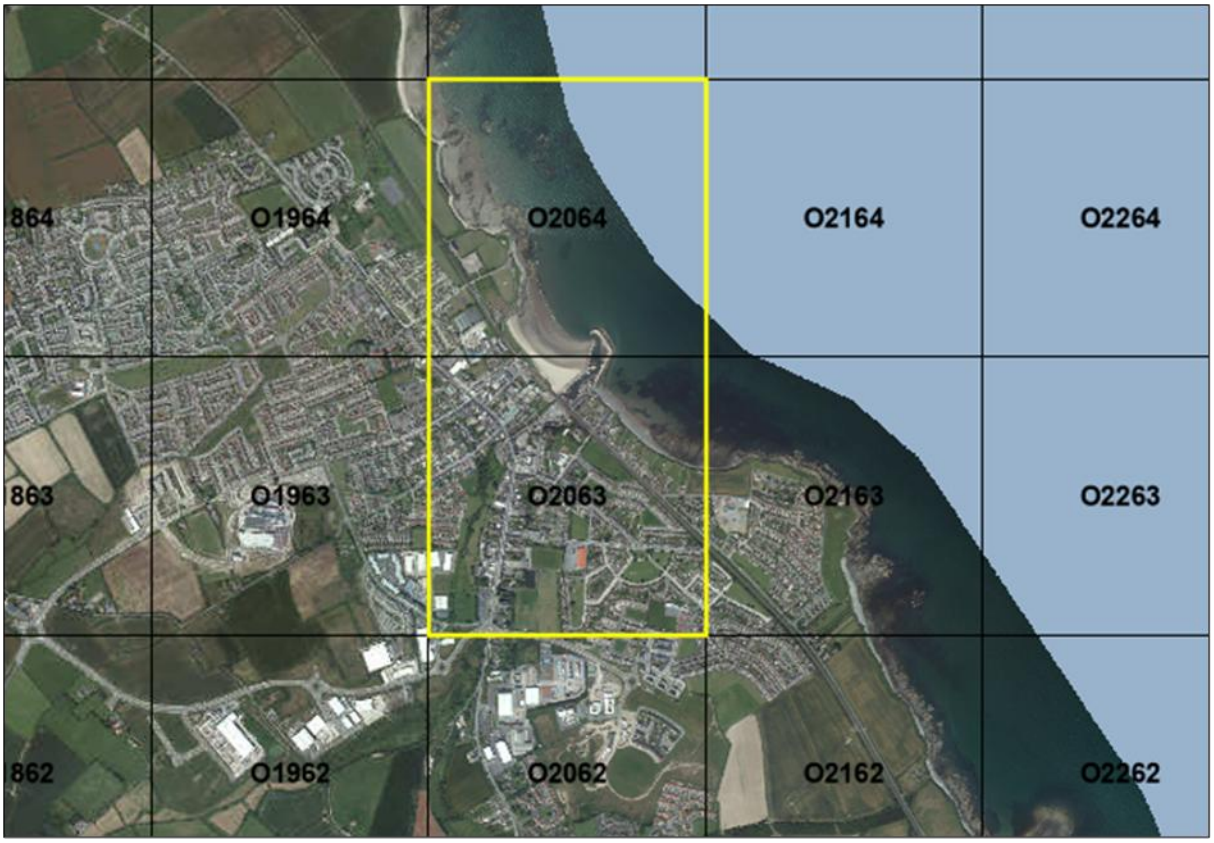

Figure 4-1: 1 km grid squares O2063 and O2064 (in yellow) from which NBDC species records were sourced.

Records available from the NBDC within the 1 km squares O2063 and O2064 are available in Appendix B.

[4.3.1.1] Birds of Conservation Concern in Ireland (BoCCI)

Of the available NBDC species records, there are twenty-two amber-listed species and nine red-listed species (See Tables B-1 and B-2 in Appendix B).

[4.3.1.2] EU Birds Directive

Of the available NBDC species records, there are **seven** Annex I, **six** Annex II, and **three** Annex III EU Birds Directive listed species (See Tables B-1 and B-2 in Appendix B).

[4.3.2] Survey Results

A comprehensive list of the birds recorded during the wintering bird surveys undertaken by the Ayesa ecologists on 15/01/2025 and 27/03/2025 is shown in Appendix C of this report. These results are listed in tables that refer to each stationary observation point from which bird records were taken over the two surveys.

Table 4-1 lists the bird species recorded during wintering bird surveys that carry special protection (Birds of Conservation Concern in Ireland or birds listed in the Annexes of the EU Birds Directive (2009/147/EC) (EC, 2009)).

Table 4-1: Recorded birds listed for special protection – Ayesa, 2025.

Birds of Conservation Concern in Ireland (BoCCI)	EU Birds Directive – Annexed Species
Amber Listed:	Annex I:
Brent Goose (*Branta bernicla*)	Great Northen Diver (*Gavia immer*)
Great Black-backed Gull (*Larus marinus*)	
Great Cormorant (*Phalacrocorax carbo*)	
House Sparrow (*Passer domesticus*)	
Lesser Black-backed Gull (*Larus fuscus*)	
Mew (Common) Gull (*Larus canus*)	
Oystercatcher (*Haematopus ostralegus*)	
Red Listed:	Annex II:
Herring Gull (*Larus argentatus*)	Feral Pigeon (*Columba livia*)

Photographs of bird species recorded during the survey are shown in Appendix D of this report. These pictures were taken using mobile phone devices; therefore, it was difficult to obtain high quality images of certain species of birds. Several recorded bird species were not captured on camera during the survey.

On Balbriggan Bay Beach located south of the harbour works, numerous burrows consistent with those of the Sand Martin (*Riparia riparia*) were identified within the cliff face. These burrows are typically utilised during the species' breeding season after they migrate here from Sub-Saharan Africa. This identification was confirmed by a local resident familiar with the area (see photographs in Appendix D). In the same section of the cliff, nests occupied by Northern Fulmars (*Fulmarus glacialis*) were also present, with observed activity suggesting ongoing nesting behaviour.

[4.4] Assessment of Likely Significant Effects

The sites for which significant effects were deemed likely at the screening stage (Report: M1104-AYE-R-ENV-00), and which were therefore screened in for Appropriate Assessment, are as follows: North-West Irish Sea SPA [004236], Skerries Islands SPA [004122], and Rockabill to Dalkey Island SAC [003000]. The assessment of these sites is shown in the tables below.

[4.4.1] North-West Irish Sea SPA [004236]

Twenty-one (21) bird species, primarily associated with coastal marine environment, are identified as SCIs for the North-West Irish Sea SPA. The location of this SPA is directly adjacent to proposed harbour works. Table 4-2 below outlines the assessment of the likelihood of significant effects to SCIs of the SPA.

Table 4-2: Likelihood of significant effects to SCIs of North-West Irish Sea SPA [004236]

Special Conservation Interests	Assessment	Conclusion
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 (*Phalacrocorax 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]	The location of this SPA is directly adjacent to proposed harbour works. This SPA extends offshore along the coasts of counties Louth, Meath and Dublin, and is approximately 2,333 km². Furthermore, it is ecologically connected to several existing SPAs in this area. According to the site synopsis (NPWS, 2023), North-West Irish Sea SPA is of high ornithological importance, principally on account of the internationally important populations of Manx Shearwater, Great Northern Diver, and Common Scoter. The conservation objectives of the species listed under this SPA are related to the population trends and distribution of the species (NPWS, 2012). These include: • Maintain a stable or increasing population trend. • No significant decrease in numbers or range areas. **Surface water/groundwater pathways:** Dredging activities have the potential to release suspended sediments and any associated contaminants into the aquatic environment. These may be transported via tidal and current flows to adjacent or downstream SPA areas, potentially degrading water quality and benthic habitats, reducing the availability of prey species such as fish and invertebrates, or exposing waterbirds to contaminants through ingestion or contact during foraging. Sediment sampling undertaken as part of the dredging assessment (Ayesa, Report No. CM1407-MA-RP-002) identified that the majority of material within Balbriggan Harbour is non-hazardous; however, localised areas of hazardous sediment (Category D) are present. These materials are confined to small zones within the harbour basin and will require specialist handling and disposal at appropriately licensed facilities. Dumping at sea is not proposed, as the majority of material exceeded the upper contaminant limits (Class 3) for marine disposal. Dredging is proposed to occur during low-tide conditions when the harbour basin is largely dewatered, reducing the potential for immediate dispersal of suspended material. However, fine sediments disturbed during low-tide excavation may become resuspended and dispersed with the incoming tide. Accordingly, while the works are designed to minimise release of contaminated material, potential significant effects to water quality and associated SPA habitats cannot be fully ruled	**Significant effects from Surface & Groundwater pathways - Likely** **Significant effects from Air pathways– Likely** **Significant effects from Land pathways–Likely**

Arctic Tern (*Sterna paradisaea*) [A194] Little Tern (*Sterna albifrons*) [A195] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204]	out, given that the SPA lies within the 5 km zone of influence for surface water quality effects. **Air pathways:** Noise emissions from machinery and equipment can have significant effects on birds. The proposed dredging works will result in the production of noise, vibration, and dust effects, with numerous bird species likely to be disturbed, albeit on a short-term basis. Potential affects through this pathway include but are not limited to the following: displacement, communication disruption, and stress responses. Similarly, vibration and dust emissions can have significant effects on aquatic and terrestrial biota that may be important prey items. The proposed harbour works will be taking place directly adjacent (<100m) to the SPA. Consequently, it is determined that significant effects to the conservation objectives of the designated bird species through air pathways are likely. **Land Pathways:** The works will occur within Balbriggan Harbour, wherein there is potential for loss of habitat, direct physical disturbance to birds and/or their nests, and loss of connectivity between habitats for bird species designated under this SPA. Consequently, it is determined that significant effects to the conservation objectives of bird species through land pathways are likely.	

[4.4.2] Skerries Islands SPA [004122]

Six (6) bird species, primarily associated with coastal marine environment, are identified as SCIs for the Skerries Islands SPA. This SPA is located ca. 6km (hydrological distance) from the proposed harbour works. Table 4-3 below outlines the assessment of the likelihood of significant effects to SCIs of the SPA.

Table 4-3: Likelihood of significant effects to SCIs of Skerries Islands SPA [004122]

Special Conservation Interests	Assessment	Conclusion
Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184]	This SPA is located ca. 6km from the proposed Balbriggan Harbour works. The Skerries Islands are a group of three small uninhabited islands, Shenick's Island, St Patrick's Island and Colt Island. According to the site synopsis (NPWS, 2009), Skerries Islands SPA is of high ornithological importance principally on account of the internationally important populations of wintering Light-bellied Brent Goose. Additionally, in winter the islands regularly support a range of waterfowl species, including nationally important populations of Cormorant, Purple Sandpiper, Turnstone, and Herring Gull. The conservation objectives of the waterbird species listed under this SPA are related to the population trends and distribution of the species (NPWS, 2012). These include, • Maintain a stable or increasing population trend. • No significant decrease in numbers or range areas. **Surface water/groundwater pathways:** Dredging activities have the potential to release suspended sediments and any associated contaminants into the aquatic environment. These could be transported via tidal or current flows to downstream or nearby SPA areas, potentially affecting water quality and benthic habitats, reducing the availability of prey species such as fish and invertebrates, or exposing waterbirds to contaminants through ingestion or contact during foraging. Sediment sampling undertaken for the dredging assessment (Ayesa, Report No. CM1407-MA-RP-002) found that the majority of material within Balbriggan Harbour is non-hazardous, with localised areas of hazardous sediment confined to small zones of the harbour basin. All dredged material will be handled and disposed of at licensed landside facilities, with no dumping at sea proposed. Dredging will be undertaken at low tide when the basin is largely dewatered, reducing the potential for the release and transport of suspended material. Given the limited extent of contaminated sediment, the proposed controls on sediment handling, and the distance of this SPA from the works area, falling outside the 5 km zone of influence for surface water quality effects, there is no realistic potential for significant effects to occur via the surface water or groundwater pathways.	**Significant effects from Surface & Groundwater pathways –Unlikely** **Significant effects from Air pathways– Unlikely** **Significant effects from Land pathways–Unlikely**

	Air pathways: Noise emissions from machinery and equipment can have significant effects on birds. The proposed dredging works will result in the production of noise, vibration, and dust effects, wherein numerous bird species are likely to be disturbed, albeit on a short-term basis. Potential effects through this pathway include but are not limited to the following; displacement, communication disruption, and stress responses. Similarly, vibration and dust emissions can have significant effects on aquatic and terrestrial biota that may be important prey items. While the proposed harbour works will be taking place ca. 6km from this SPA, it cannot be determined that the designated species do not use the harbour for feeding, resting/roosting and/or nesting/sheltering. Consequently, it is determined that significant effects to the conservation objectives of SCI bird species of this SPA through air pathways are possible. **Land Pathways:** The proposed dredging works will not overlap nor infringe on the boundary of any key wintering, roosting and foraging habitat for bird species protected under this SPA. Consequently, it is determined that significant effects to the conservation objectives of SCI bird species of this SPA through land pathways are unlikely.	

[4.4.3] Rockabill to Dalkey Island SAC [003000]

One (1) habitat and one (1) species were identified as QIs for the Rockabill to Dalkey Island SAC, which are typically associated with marine ecosystems. This SAC is located ca. 7 km (hydrological distance) from the proposed harbour works. Table 4-4 below provides an assessment of each QI identified for the SAC.

Table 6-5: Likelihood of significant effects to QIs of Rockabill to Dalkey Island SAC [003000]

Qualifying Interests	Assessment	Conclusion
Habitats		
Reefs [1170]	**Surface Water Pathways:** Dredging activities have the potential to increase suspended sediment concentrations and release contaminants or hydrocarbons into the aquatic environment. Elevated turbidity may cause temporary reductions in light penetration and, if deposited, could smother sensitive reef structures and associated biota, including filter-feeding organisms that rely on clean water conditions.	**Significant effects from Surface & Groundwater pathways - Unlikely**

Qualifying Interests	Assessment	Conclusion
	Sediment sampling undertaken for the dredging assessment (Ayesa, Report No. CM1407-MA-RP-002) identified that while a small proportion of harbour sediment is classified as hazardous (Category D), the majority of material is non-hazardous and will be managed in accordance with the relevant waste classification. All dredged material will be transported to licensed landside facilities, with no dumping at sea proposed. Works are also to be undertaken during low-tide conditions, when the harbour basin is largely dewatered, thereby limiting the potential for sediment dispersion during active dredging. Given the significant distance between the works area and the Reefs [1170] habitat and considering that any fine sediment released during low-tide excavation would be rapidly diluted and dispersed within the water column on the incoming tide, it is highly unlikely that measurable increases in turbidity or contaminant concentrations would reach the SAC. Similarly, while the accidental release of hydrocarbons cannot be entirely ruled out, standard construction best-practice measures (e.g. use of drip trays, designated refuelling areas, and spill-response procedures) will minimise this risk. Considering the distance from the works and the limited potential for contaminant transport, it is concluded that no likely significant effects on this qualifying interest will occur via surface water pathways. **Air Pathways:** Reef habitats are key supporting habitats for benthic invertebrate and fish communities which in turn are imperative to ecological functioning (e.g., nutrient cycling, oxygenation of sediment via turbations, forage sources, etc). This habitat is located a significant distance from the proposed works (ca. 7km). No piling or underwater noise emissions are planned during the proposed maintenance works. Furthermore, any effects from dust emissions from the proposed works will be dissipated quickly because of the dilution effect. Consequently, it is determined that significant effects to the conservation objectives of reefs through air pathways are unlikely. **Land Pathways:** The harbour dredging works will not incur any intrusion or loss to reef habitats, nor will the works result in subsequent indirect effects to communities associated with reef habitats. Consequently, it is determined that significant effects to the conservation objectives of reefs through land pathways are unlikely.	**Significant effects from Air pathways–Unlikely** **Significant effects from Land pathways–Unlikely**

Qualifying Interests	Assessment	Conclusion
Species		
Harbour Porpoise (*Phocoena phocoena*) [1351]	**Surface Water Pathways:** The Harbour Porpoise may be directly or indirectly be impacted on via the surface water pathway from dredging works as they are a highly mobile marine mammal. Sedimentation may have indirect impacts on prey availability or directly via a reduction in oxygen levels or release of contaminants (e.g. heavy metals, hydrocarbons) previously bound in seabed sediments. Even though works are due to take place during low tide, disturbed sediment released during low-tide dredging may become suspended and widely dispersed with the incoming tide. Therefore, significant affects via the surface water pathway cannot be ruled out. Additionally, the release of hydrocarbons during dredging activities cannot be ruled out. These can accumulate in the water column or sediments, posing a toxic risk to Harbour Porpoise through ingestion of contaminated prey or inhalation at the surface. **Air Pathways:** Underwater noise is a primary concern with this species, as the harbour porpoise is highly mobile and sensitive to acoustic disturbance. Low frequency noise emissions from dredging may result in avoidance behaviour (displacement from foraging areas), masking of echolocation clicks used for hunting and navigation, and increased stress levels. Underwater noise impacts can extend well beyond the immediate dredging location. However, as the works will be taking place at low tide, significant underwater noise effects can be determined unlikely. **Land Pathways:** This QI is not sensitive to significant effects originating from land-based activities.	**Significant effects from Surface & Groundwater pathways - Likely** **Significant effects from Air pathways– Unlikely** **Significant effects from Land pathways–Unlikely**

[5] Appropriate Assessment

The potential for adverse impacts on the screened-in European Sites is assessed in this chapter in detail using the information assembled from the baseline ecology and designated site details. Specifically, this assessment examines the sources from where adverse impacts may arise during the proposed works. Where potentially significant adverse impacts are identified, mitigation measures are prescribed to offset them. These are discussed in the following sections.

The potential adverse impacts to European Sites and their conservation objectives that may occur as a result of the Scheme include:

- Loss of qualifying habitat or species where the works will require removal of those habitat or species within the site(s).
- Loss of qualifying habitat or species within the site(s) as a result of release of sediments and/or suspended silt into watercourses within or upstream of the site(s) during the works.
- Temporary habitat loss and/or fragmentation.
- Temporary barrier to faunal and avifaunal movement.
- Temporary disturbance due to noise and vibration when using plant and machinery.
- Cumulative impacts relating to other plans/projects.

[5.1] Impact Assessment

The main impacts with the potential to occur as a result of the works include both those that are temporary and permanent in nature. Temporary impacts include disturbance to fauna including waterbirds, marine mammals, and their prey, and to coastal habitats, as well as temporary impacts to water quality and physical alterations to habitats that will recover following the works. Permanent impacts include permanent loss of species and habitats, water quality impairment, and physical disturbance resulting in permanent loss of habitat(s).

[5.2] Description of Potential Impacts (Unmitigated)

[5.2.1] Effects on European Sites

The proposed development is hydrologically connected to three European Sites. This could aid the dispersion of any sediment and/or hydrocarbons that may be mobilised from the harbour works in the direction of these European Sites. The proposed site is also connected to the protected sites through air pathways which can transmit noise emissions from the site. If left unmitigated the health and condition of some qualifying habitats and species of these sites could be detrimentally impacted on.

[5.2.2] General Impacts on Key Ecological Receptors

[5.2.2.1] Habitat Loss and Degradation

The proposed maintenance dredging works within Balbriggan Harbour will inevitably lead to some minor habitat loss. There is some risk to the intertidal mudflat habitat within the harbour basin that will be directly disturbed during dredging.

Water quality impacts arising from both the construction and the operation of the proposed works have the potential to affect habitats and species directly and indirectly. Accidental pollution events could result in sediment and pollutants entering The Irish Sea. Increased storm water overflow incidences could also result in increased pollutants entering The Irish Sea.

[5.2.3] Disturbance (noise/visual)

A number of activities can result in disturbance, including visual and noise. Primary sources of noise and vibration impacts will subsequently stem from the harbour basin works and the associated machinery required. Disturbance can cause sensitive species, such as birds, to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

Noise and vibration impacts are generally associated with the use of construction machinery and vehicles. The high levels of noise generated from construction activities can cause significant disturbance to local fauna such as seabirds, fish, marine turtles, and marine mammals. Vibration emissions can similarly impart impacts to marine fauna, as well as the disturbance of prey items such as fish, crustaceans and benthic invertebrates. Moreover, underwater noise and vibration emissions can interfere with the foraging behaviour and communication of marine mammals and subsequently cause them to vacate the affected habitats or become stressed, ultimately affecting their survival. Noise and vibration pose specific risk to marine mammals, especially to cetaceans which use echolocation to forage and underwater sound to communicate. Behavioural responses from pinnipeds and cetaceans to underwater noise has been challenging to assess (Gomez et al. 2016, Southall et al. 2021). For example, changes in cetacean behaviour can be driven by the health and/or condition of the individual, age-class, context in which a change in behaviour may occur (e.g. transiting an area vs. actively foraging) (Helm et al., 2015). Consequently, it is difficult to derive a specific threshold of noise disturbance for marine mammals (Gomez et al. 2016, Southall et al. 2021).

[5.2.4] Water Quality and Pollution

A number of project activities can impact upon water quality, particularly through changes in nutrient status, turbidity, and contaminant levels. Dredging works can result in sediment resuspension and influx into adjacent marine areas, which may result in increased turbidity and associated changes to water quality. While suspended sediment is a natural feature of the marine environment, excessive sedimentation can reduce water clarity, disrupt aquatic plant growth, alter nutrient balance, and degrade habitats for fish, benthic invertebrates, marine mammals, and birds. Prolonged or repeated disturbance may also have medium- to long-term implications for qualifying interest habitats within nearby designated sites.

Sediment sampling undertaken for the dredging assessment (Ayesa, Report No. CM1407-MA-RP-002) found that the majority of material within Balbriggan Harbour is non-hazardous, with only small, localised areas of hazardous sediment (Category D). These areas contain elevated concentrations of contaminants such as metals and hydrocarbons. Disturbance of such sediments during dredging could result in the release of bound contaminants into the water column, with the potential to degrade water quality and affect aquatic organisms through direct exposure or bioaccumulation in prey species.

Hydrocarbon pollution represents an additional potential source of water quality degradation. Hydrocarbons such as diesel, oil, and hydraulic fluids are toxic to a wide range of aquatic organisms, including fish, crustaceans, benthic invertebrates, marine birds, and mammals. Their release into the marine environment can alter the physical and chemical properties of water, leading to oxygen depletion and physiological effects such as embryo malformation,

delayed maturation, and suppressed gene expression in fish (Holth, 2009). Reduction in fish numbers could, in turn, affect the food availability of key fisheries species, cetaceans, and numerous marine birds.

Primary potential sources of hydrocarbon pollution in this project include excavators, tugboats, and sealed haulage trucks operating within and around the harbour. While the likelihood of accidental release is low, any such event could result in localised contamination of adjacent marine waters.

[5.2.5] Indirect Mortality

The physiological effects of exposure to, and ingestion of significant concentrations of hydrocarbons on fish has been well-documented; these include delayed maturation, embryo malformation and suppressed gene expression (Holth, 2009). Many bird species that are SCIs of North-West Irish Sea SPA and Skerries Islands SPA have diets consisting of fish. Consumption of contaminated prey can represent a risk of ill-health and could potentially result in mortality.

[5.2.6] Impact Evaluation

Three European Sites, North-West Irish Sea SPA, Skerries Islands SPA, and Rockabill to Dalkey Island SAC, fall within the ZOI of the works and are therefore subject to potential impacts via surface water and groundwater pathways, air pathways, and land pathways. Where potentially significant adverse impacts are identified, avoidance and mitigation measures are proposed to offset these impacts. Mitigation measures required for potential adverse impacts that may arise as a result of the harbour works are described in detail in Section 6 below.

[6] Impact Assessment

Table 6-1 evaluates the screened in European Sites and the QIs/SCIs that may be significantly impacted. Where potentially significant adverse impacts are identified, avoidance and mitigation measures are prescribed to offset these impacts.

Table 6-1: Potential Significant Effects to Qualifying Interests of European Sites proximal to the proposed development site and Mitigation Measures prescribed.

Qualifying Interest / Special Conservation Interest	Potential Source of Impact	Impact prior to Mitigation	Mitigation Measure	Likelihood of Impact following Mitigation
North-West Irish Sea SPA [004236]				
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 (*Phalacrocorax aristotelis*) [A018] Common Scoter (*Melanitta nigra*) [A065] Little Gull (*Larus minutus*) [A177]	**Surface water/groundwater pathways:** Dredging can release contaminated sediments and hydrocarbons into the water, potentially spreading via tides and currents, degrading water quality and habitats, reducing prey availability, and exposing waterbirds to toxins. Dredging activities have the potential to release suspended sediments and any associated contaminants into the aquatic environment. These may be transported via tidal and current flows to adjacent or downstream SPA areas. **Air pathways:** Dredging near the SPA (<100 m) will generate noise, vibration, and dust, likely disturbing birds	• Loss of prey items through pollution impacts. • Die-off of individuals due to ingestion of contaminated food items. • Loss of key breeding and/or foraging habitat. • Long-term/permanent displacement of individuals and species through noise and vibration impacts.	**Surface water/groundwater pathways:** **-** Employ precision dredging techniques. **-**Monitor turbidity levels in real-time using sensors and pause work if thresholds are exceeded. - The timing of dredging activities shall consider prevailing weather conditions (e.g., high winds, heavy rainfall, or storm surges) and seasonal ecological sensitivities relevant to the harbour environment (e.g., the presence of wintering bird species). - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents and oils, will be carefully handled to avoid spillage. Fuelling and lubrication of equipment will not be carried out within 10m of the water where this is possible. Any spillage of fuels, lubricants or hydraulic oils must be immediately contained, and the contaminated substrate removed from the site	**Unlikely**

Qualifying Interest / Special Conservation Interest	Potential Source of Impact	Impact prior to Mitigation	Mitigation Measure	Likelihood of Impact following Mitigation
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]	through displacement from key habitats for foraging, roosting, and breeding, stress, and disrupted communication, and may also affect prey species, posing a risk to conservation objectives. **Land Pathways:** Dredging Works within the harbour basin may cause habitat loss, bird disturbance, and reduced habitat connectivity, likely impacting SPA bird conservation objectives via land pathways.		and dispatched to a suitably authorised waste facility. **Air pathways:** - Sudden loud noises (or impulsive noises) should be avoided where practicable when construction activity is underway. This will help limit the potential for nearby birds to become startled and displaced from their habitat. -Mobile plant will be switched off when not in use and not left idling. - The use of an appropriate exhaust silencer system. -No machinery should be left running outside of the agreed operation hours, which must limit any noise emissions from the site in the late evenings and early mornings when faunal activity is at a higher level. **Land Pathways:** **-** Restrict construction/dredging activities to periods outside sensitive breeding or feeding periods for bird species, when activity levels within the harbour basin are higher. - Avoid contamination of mudflats	

Qualifying Interest / Special Conservation Interest	Potential Source of Impact	Impact prior to Mitigation	Mitigation Measure	Likelihood of Impact following Mitigation
Little Tern (*Sterna albifrons*) [A195] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204]			from fuels, lubricants and hydraulic fluids.	
Skerries Islands SPA [004122]				
Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148]	**Air pathways:** Dredging works within the harbour will generate noise, vibration, and dust, potentially disturbing birds and affecting prey species.	• Long-term/permanent displacement of individuals and species through noise and vibration impacts.	**Air pathways:** - Sudden loud noises (or impulsive noises) should be avoided where practicable when construction activity is underway. This will help limit the potential for nearby birds to become startled and displaced from their habitat. -Mobile plant will be switched off when not in use and not left idling. - The use of an appropriate exhaust silencer system. -No machinery should be left running outside of the agreed operation hours, which must limit any noise emissions from the site in the late evenings and early mornings when faunal activity is at a higher level.	**Unlikely**

Qualifying Interest / Special Conservation Interest	Potential Source of Impact	Impact prior to Mitigation	Mitigation Measure	Likelihood of Impact following Mitigation
Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184]				
Rockabill to Dalkey Island SAC [003000]				
Reefs [1170]			**N/a***	
Harbour Porpoise (*Phocoena phocoena*) [1351]	**Surface Water Pathways:** . The Harbour Porpoise may be directly or indirectly be impacted on via the surface water pathway from dredging works as they are a highly mobile marine mammal. Sedimentation may have indirect impacts on prey availability or directly via a reduction in oxygen levels or release of contaminants (e.g. heavy metals, hydrocarbons) previously bound in seabed sediments. Hydrocarbon release poses additional toxic risks through ingestion or inhalation.	• Loss of prey items through pollution impacts. • Die-off of individuals due to ingestion of contaminated food items. • Loss of key breeding and/or foraging habitat. • Long-term/permanent displacement of individuals and species through noise and vibration impacts.	**Surface water/groundwater pathways:** - Employ precision dredging techniques. -Monitor turbidity levels in real-time using sensors, and pause work if thresholds are exceeded. - The timing of dredging activities shall consider prevailing weather conditions (e.g., high winds, heavy rainfall, or storm surges) and seasonal ecological sensitivities relevant to the harbour environment. - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents and oils, will be carefully handled to avoid spillage. Fuelling	**Unlikely**

Qualifying Interest / Special Conservation Interest	Potential Source of Impact	Impact prior to Mitigation	Mitigation Measure	Likelihood of Impact following Mitigation
			and lubrication of equipment will not be carried out within 10m of the water where this is possible. Any spillage of fuels, lubricants or hydraulic oils must be immediately contained, and the contaminated substrate removed from the site and dispatched to a suitably authorised waste facility.	

*N/a: Not applicable to Reef habitat as screened out during screening stage (See AA Screening Report: M1104-AYE-ENV-00)

[6.1] Cumulative and In-Combination Impacts

It is a requirement of Appropriate Assessment that the cumulative or in-combination effects of the proposed development together with other plans or projects are assessed. Cumulative impacts can be defined as a project/plan/programme likely to have a significant effect thereon, either individually or in combination with other plans or projects.

For the purposes of this project, two types of cumulative impact have been defined:

- Type 1: Cumulative impacts from a single project (the combined effects of different activities during both maintenance and operation) upon a single resource/receptor, and
- Type 2: Cumulative impacts from different projects in combination with the project being assessed (the combined action of a number of different projects, cumulatively with the project being assessed, on a single resource/receptor). This can include multiple impacts of the same or similar type from a number of different projects upon the same receptor/resource).

[6.1.1] Cumulative Impacts Assessment

The following sources were consulted in order to determine if there were any other plans or projects in the area which could result in cumulative effects:

- Department of Housing, Local Government and Heritage (DHLGH) – Foreshore Applications https://www.housing.gov.ie/planning/foreshore/applications/
- DHPL EIA Portal; https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal
- Fingal County Council – Planning Enquiry System; https://www.fingal.ie/view-or-search-planning-applications

Table 6-2 provides a list of the approved plans/projects from the last three years within 500m of the proposed works which may have the potential to interact with a European Site. Each plan/project is assessed in terms of the likelihood for in-combination effects to lead to significant negative effects on European Site. There are three (3) approved planning permissions within the vicinity of Balbriggan Harbour. All other approved plans have been completed and do not pose any risk of in-combination effects.

Table 6-2: Assessment of Approved Plans and In-Combination Effects.

Plan/Project (Date)	Applicant [Address]	Overview	Potential significant effects from plan / project and In-combination effects
Planning Ref: F23A/0745 Granted 30/09/2024	Mr Hugh Cashell & Mrs Deirdre Cashell Glendale, Seapoint Lane, Balbriggan, Co. Dublin.	Planning permission sought for the construction and alterations to existing bungalow to form two storey dormer bungalow with raised pitched roof incorporating two storey gable elevation at front on south eastern elevation to be extended forward of existing gable wall in addition to single storey extensions to front and rear of proposed bungalow incorporating (i) rooflights on front elevation (ii) raised roof to single storey garage conversion at side of existing bungalow and (iii) relocation of vehicular access to south-western boundary along with all associated site works all at Glendale, Seapoint Lane, Balbriggan, Co. Dublin.	The planning application is located ca. 80m from the Balbriggan Harbour works. There is potential for: • Sediment run-off • Noise and Vibration impacts • Contaminated surface water run-off / hydrocarbon spills There is no hydrological connectivity between the proposed planning development and the harbour. However, due to the proximity to the works in-combination effects cannot be ruled out.
Planning Ref: PARTXI/006/20 Granted 14/06/2021	Parks and Green Infrastructure Division, Planning & Strategic Infrastructure Dep. [Band Stand Park, Bremore Regional Park, Balbriggan, Co. Dublin]	The Bremore Regional Park Development Project, including The Balbriggan Sports and Recreational Hub, Central Zone Open Spaces, new Coastal Park, all ancillary infrastructure and Park Boundaries at Bremore Regional Park, Balbriggan, Co. Dublin.	The planning application is located ca. 330m from the Balbriggan Harbour works. There is potential for: • Sediment run-off • Noise and Vibration impacts • Contaminated surface water run-off / hydrocarbon spills There is direct hydrological connectivity between the proposed planning development and the harbour. Due, to the proximity to the works and the open nature of the beach between the two sites in-combination effects cannot be ruled out.

Planning Ref: F22A/0371 Granted 18/10/2022	AECOM Quay street wastewater Pumping Station (WsPS), Quay Street, Balbriggan, Co. dublin, K32 V184.	The construction of a new above ground Motor Control Centre (MCC) kiosk (24m3) and associated ancillary works within existing Quay Street wastewater Pumping station (WwPS).	The planning application is located ca. 50m from the Balbriggan Harbour works. There is potential for: • Sediment run-off • Noise and Vibration impacts • Contaminated surface water run-off / hydrocarbon spills There is direct hydrological connectivity between the proposed planning development and the harbour. Due, to the close proximity to the works in-combination effects cannot be ruled out.

[7] Recommended Mitigation

[7.1] Design Mitigation

This section describes the mitigation measures that have been incorporated at the design stage. A number of measures which follow generic best practice are proposed to mitigate the impacts of the proposed works on the ecological environment at the Site:

[7.1.1] General

- All Site construction will be undertaken in accordance with the CIRIA (2015) Environmental Good Practice on Site (Charles and Edwards 2015);
- Mitigation described in this report will be followed during site construction;
- There shall be no water abstraction from or discharges to/from the construction activities on the site;
- A site-specific Construction Environmental Management Plan (CEMP) will be written by the contractor prior to site works commencing. This CEMP will incorporate the mitigation measures listed here.

[7.1.2] Site Compound

The site compound shall be located within the site boundary, where practicable.

- The compound will be sited as far from any waterbody as possible in order to minimise any potential impacts.
- The compound shall not contain any permanent storage for hazardous substances, oils and lubricants.
- Only plant and materials necessary for the construction of the works will be permitted to be stored at the compound location.

[7.2] Specific Mitigation

[7.2.1] Surface Water Protection

Temporal impacts due to increased levels of turbidity/sedimentation and accidental spillages cannot be ruled out. Mitigation measures will be required to manage the potential impacts:

- Monitor turbidity levels in real-time using sensors, and pause work if thresholds are exceeded.
- Employ precision dredging techniques (e.g., environmental clamshells or suction dredgers) to reduce sediment resuspension.
- To minimise exacerbated adverse effects, the timing of dredging activities shall consider prevailing weather conditions (e.g., high winds, heavy rainfall, or storm surges) and seasonal ecological sensitivities relevant to the harbour environment (e.g., the presence of wintering bird species). The site development manager shall schedule

works to avoid periods of heightened vulnerability, with reference to best available ecological data and, where appropriate, in consultation with the relevant statutory authorities.

- Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents and oils, will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, provided with spill containment and secondary containment bunding to protect water quality. All tanks and containment bunds will be pressure tested prior to use.

- Fuelling and lubrication of equipment shall only be undertaken in designated bunded areas.

- Refuelling must be carried out using 110% capacity double bunded mobile bowsers. The refuelling bowser must be operated by trained personnel. The bowser must have spill containment equipment which the operators must be fully trained in using.

- Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips.

- To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up-to-date service record must be required from the main contractor.

- Any spillage of fuels, lubricants or hydraulic oils must be immediately contained, and the contaminated substrate removed from the site and dispatched to a suitably authorised waste facility.

- Immediate action must be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks must be kept at the site compound and also in site vehicles and machinery. Correct action in the event of a leak or spill must be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment.

- The site environmental representative must be immediately informed of the oil leak/spill and must assess the cause and the management of the clean-up of the leak or spill. They must inspect the presence of oil and initiate the cleanup if necessary.

- The washing of vehicles and/or construction machinery and/or HGV's must not occur on or near the development site. Moreover, it is recommended that a wash down area for vehicles/machinery does not occur within 200 m of the harbour.

It is considered that, with the implementation of the proposed mitigation measures outlined above, there will be no significant risk to any nearby SACs or SPAs. With appropriate measures in place to address the risks arising from silt/turbidity or accidental spills, potential impacts to nearby European Sites can be avoided entirely.

[7.2.2] Noise and Vibration

The following mitigation measures are recommended as standard practice and should be adhered to for the duration of the harbour works:

- During the works, best practice noise reduction measures described in British Standard 5228-12009+A1:2009, Code of Practice for Noise and Vibration Control on

Construction and Open Sites must be incorporated into the Construction and Environmental Management Plan.

- For mobile plant items such as HGV's, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation.
- Mobile plant will be switched off when not in use and not left idling.
- For steady continuous noise, such as that generated by diesel engines, noise reduction can be achieved by fitting a more effective exhaust silencer system.
- No machinery should be left running outside of the agreed operation hours, which must limit any noise emissions from the site in the late evenings and early mornings when faunal activity is at a higher level.

[7.2.3] Birds

[7.2.3.1] General Site Management During Construction to Avoid Contamination of Receiving Waters

Surface water protective measures outlined above in the specific mitigation measures will be adhered to. This will help avoid the contamination of mudflats, and waterbody where birds forage in the harbour.

[7.2.3.2] Noise Control

Sudden loud noises (or impulsive noises) should be avoided where practicable when construction activity is underway. This will help limit the potential for nearby birds to become startled and displaced from their habitat, especially species of birds that are resident to Ireland and are located in the country all year round, not just during the breeding season.

Noise emission measures outlined above in the specific mitigation measures will be adhered to for the protection of surrounding waterbirds. This will help avoid significant negative impacts to surrounding bird species from potential noise emissions from the site.

[7.3] Monitoring

[7.3.1] Dredging and pre-dredging Phase

[7.3.1.1] Ecological Clerks of Work (ECoW)

A species protection plan should be designed by a professional ecologist to ensure that works related to this proposal consider any protected bird species present on site and the nearby surroundings. An Ecological Clerk of Works (ECoW) should be employed to monitor the works under license, and to inform the team through Ecological Toolbox Talks during the proposed maintenance dredging works.

The ECoW shall be present on-site during commencement of works. As such the following points must be adhered to for this scheme:

- An Ecological Clerk of Works (ECoW) will be involved as required during the dredging period for this scheme, in order to ensure that the required mitigation is implemented.

- A pre-dredging rapid ecology survey will be carried out within the proposed scheme area well in advance (within 3 months prior to proposed works) in order to ensure that sufficient updated information is available to inform derogation licence applications as required.

- The ECoW and the Appointed Contractor will walk the proposed scheme together prior to work commencing on the site, in order to discuss the ecological constraints, to highlight all required mitigation and to demarcate exclusion zones appropriately.

[8] Conclusion

This Appropriate Assessment Natura Impact Statement has been completed in compliance with the relevant European and national guidelines. The potential impacts during the proposed works have been considered in the context of the European Sites potentially affected, their Qualifying Interests/Special Conservation Interests and Conservation Objectives.

Robust and effective mitigation measures have been proposed for the avoidance of any impacts surrounding water quality, noise emissions and invasive species.

Considering the proposed mitigation measures, and based on the best scientific knowledge available, it is concluded that there will be **no adverse effects** on the integrity of nearby European Sites, particularly the North-West Irish Sea SPA [004236], Skerries Islands SPA [004122], and Rockabill to Dalkey Island SAC [003000], as a result of the proposed maintenance dredging works at Balbriggan Harbour. Furthermore, no in-combination effects with other plans or projects are anticipated.

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Appendix A: Habitat Photographs

Figure A-1: Buildings and Artificial Surfaces (BL3) habitat recorded on Site – 15-01-2025.

Figure A-2: Buildings and Artificial Surfaces (BL3) habitat recorded on Site – 15-01-2025.

Figure A-3: Buildings and Artificial Surfaces (BL3) habitat recorded on Site – 15-01-2025.

Figure A-4: Open Marine Water (MW4) habitat recorded on Site – 15-01-2025.

Figure A-5: Muddy Sand Shore (LS3) habitat recorded on Site – 15-01-2025.

Figure A-6: Mixed Substrata Shore (LR4) habitat recorded on Site – 15-01-2025.

Figure A-7: Amenity Grassland (GA2) habitat recorded on Site – 15-01-2025.

Appendix B: NBDC Records

Table B-1: Bird Species recorded in the 1 km square O2063.

Species Name	Record Count	Date of Last Record	Designation
Black-headed Gull (*Larus ridibundus*)	1	06/04/2008	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Common Kingfisher (*Alcedo atthis*)	2	26/03/2023	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Common Shelduck (*Tadorna tadorna*)	1	06/04/2008	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Starling (*Sturnus vulgaris*)	1	25/05/2022	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Swift (*Apus apus*)	5	15/07/2021	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Eurasian Hobby (*Falco subbuteo*)	2	09/05/2014	Protected Species: Wildlife Acts
Eurasian Sparrowhawk (*Accipiter nisus*)	1	03/04/2023	Protected Species: Wildlife Acts
Eurasian Spoonbill (*Platalea leucorodia*)	1	14/06/2007	Protected Species: Wildlife Acts
European Bee-eater (*Merops apiaster*)	1	02/05/1889	Protected Species: Wildlife Acts
Forster's Tern (*Sterna forsteri*)	1	01/11/2009	Protected Species: Wildlife Acts
Great Black-backed Gull (*Larus marinus*)	1	06/04/2008	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Grey Wagtail (*Motacilla cinerea*)	4	26/03/2023	Protected Species: Wildlife Acts
Hawfinch (*Coccothraustes coccothraustes*)	1	14/02/1914	Protected Species: Wildlife Acts
Herring Gull (*Larus argentatus*)	1	15/06/2002	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Hooded Crow (*Corvus cornix*)	1	06/04/2008	Protected Species: Wildlife Acts
Little Crake (*Porzana parva*)	1	11/03/1854	Protected Species: Wildlife Acts
Mute Swan (*Cygnus olor*)	1	25/05/2022	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Pallas's Sandgrouse (*Syrrhaptes paradoxus*)	1	31/12/1863	Protected Species: Wildlife Acts
Richard's Pipit	1	21/10/2012	Protected Species: Wildlife Acts

(*Anthus richardi*)			
Surf Scoter (*Melanitta perspicillata*)	3	29/03/2013	Protected Species: Wildlife Acts

Table B-2: Bird Species recorded in the 1 km square O2064.

Species Name	Record Count	Date of Last Record	Designation
Bar-tailed Godwit (*Limosa lapponica*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Black Guillemot (*Cepphus grylle*)	1	29/04/1998	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Black-headed Gull (*Larus ridibundus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Black-legged Kittiwake (*Rissa tridactyla*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Black-tailed Godwit (*Limosa limosa*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Black-throated Diver (*Gavia arctica*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Brent Goose (*Branta bernicla*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Greenshank (*Tringa nebularia*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Kingfisher (*Alcedo atthis*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Common Redshank (*Tringa totanus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Common Scoter (*Melanitta nigra*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II and III Birds of Conservation Concern - Red List
Common Shelduck (*Tadorna tadorna*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Snipe (*Gallinago gallinago*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II and III Birds of Conservation Concern – Amber List
Dunlin (*Calidris alpina*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List

Eurasian Curlew (*Numenius arquata*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II Birds of Conservation Concern - Red List
Eurasian Oystercatcher (*Haematopus ostralegus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
European Golden Plover (*Pluvialis apricaria*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I and III Birds of Conservation Concern - Red List
Great Black-backed Gull (*Larus marinus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Cormorant (*Phalacrocorax carbo*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Crested Grebe (*Podiceps cristatus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Northern Diver (*Gavia immer*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I
Grey Heron (*Ardea cinerea*)	1	31/12/2001	Protected Species: Wildlife Acts
Grey Plover (*Pluvialis squatarola*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Herring Gull (*Larus argentatus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Little Stint (*Calidris minuta*)	1	31/12/2001	Protected Species: Wildlife Acts
Long-tailed Tit (*Aegithalos caudatus*)	1	02/01/2015	Protected Species: Wildlife Acts
Mallard (*Anas platyrhynchos*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Mew Gull (*Larus canus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Northern Lapwing (*Vanellus vanellus*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II Birds of Conservation Concern - Red List
Purple Sandpiper (*Calidris maritima*)	1	31/12/2001	Protected Species: Wildlife Acts
Red Knot (*Calidris canutus*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Red-breasted Merganser (*Mergus serrator*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Red-throated Diver (*Gavia stellata*)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern – Amber List
Ringed Plover (*Charadrius hiaticula*)	1	31/12/2001	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List

Ruddy Turnstone (*Arenaria interpres*)	2	09/05/2021	Protected Species: Wildlife Acts
Sanderling (*Calidris alba*)	1	31/12/2001	Protected Species: Wildlife Acts
Whimbrel (*Numenius phaeopus*)	1	31/12/2001	Protected Species: Wildlife Acts
Whooper Swan (Cygnus cygnus)	1	31/12/2001	Protected Species: Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern – Amber List

Appendix C: Wintering Bird Survey Results

Survey 1 (15-01-2025)

Table C-1: Survey Conditions

Date	Start time	Finish time	Notes
15-01-2025	8:10am	9:50am	Cold (5°C), dry, light wind, moderate-good visibility. Noise/disturbance from train station, dogs, and construction work with the harbour.
Weather, highlight as appropriate			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Showers	3 - drizzle
Wind	1 - Calm	2 - Light	3 – Breezy
Visibility	1- Good	2 – Moderate	3 - Poor

Table C-2: Birds recorded from Site A – 15-01-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Feral Pigeon	*Columba livia*	3	In flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Great Cormorant	*Phalacrocorax carbo*	4	Within the water, and in flight over water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Herring Gull	*Larus argentatus*	13	Juveniles and Adults present. Foraging on grass, and in flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
House Sparrow	*Passer domesticus*	3	Within Hedgerow.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Mew (Common) Gull	*Larus canus*	1	Foraging on grass.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Oystercatcher	*Haematopus ostralegus*	>50	Flock of birds foraging in amenity grassland, wading on	No	Protected Species: Wildlife Acts

			beach, and aural recordings.		Birds of Conservation Concern: Amber List
Rook	*Corvus frugilegus*	5	In flight.	No	Protected Species: Wildlife Acts

Table C-3: Birds recorded from Site B – 15-01-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Brent Goose	*Branta bernicla*	>10	In flight over water and aural recording.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Feral Pigeon	*Columba livia*	4	In flight, on beach	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Great Cormorant	*Phalacrocorax carbo*	1	Within the water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Great Black-backed Gull	*Larus marinus*	1	In flight and in water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Herring Gull	*Larus argentatus*	>40	Juveniles and Adults present. Perched on buildings and harbour wall, and in flight (within flock and solitary), and aural recording.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	1	In flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List

Mew (Common) Gull	*Larus canus*	1	Wading on beach.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Oystercatcher	*Haematopus ostralegus*	1	Foraging on intertidal rocks.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Rook	*Corvus frugilegus*	5	In flight.	No	Protected Species: Wildlife Acts

Table C-4: Birds recorded from Site C – 15-01-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Feral Pigeon	*Columba livia*	4	Activity around railway bridge and in flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Herring Gull	*Larus argentatus*	13	Juveniles and Adults present. Perched on harbour wall, and in flight.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	1	Perched on harbour wall, in flight and aural recording.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Mew (Common) Gull	*Larus canus*	2	Perched on harbour wall.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Rock Pipit	*Anthus petrosus*	2	On harbour walls and aural recording.	Yes	Protected Species: Wildlife Acts
Turnstone	*Arenaria interpres*	2	On harbour walls and on boats within the harbour.	Yes	Protected Species: Wildlife Acts

Table C-5: Birds recorded from Site D – 15-01-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Common Starling	*Sturnus vulgaris*	2	Activity around building roofs and aural recording.	No	Protected Species: Wildlife Acts
Feral Pigeon	*Columba livia*	2	In flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Herring Gull	*Larus argentatus*	8	Juveniles and Adults present. Perched on harbour wall, in flight, and in the water.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	1	Within the water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Mew (Common) Gull	*Larus canus*	2	Within the water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Northern Fulmar	*Fulmarus glacialis*	4	Nesting on cliff face and in flight.	No	Protected Species: Wildlife Acts

Survey 2 (27-03-2025)

Table C-6: Survey Conditions

Date	Start time	Finish time	Notes
27-03-2025	12:15pm	14:05pm	Mild (13°C), dry, windy, moderate visibility. Noise/disturbance from train station, dogs, and construction work with the harbour.

Weather, highlight as appropriate			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Showers	3 - drizzle
Wind	1 - Calm	2 - Light	3 – Breezy
Visibility	1- Good	2 – Moderate	3 - Poor

Table C-7: Birds recorded from Site A – 27-03-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Brent Goose	*Branta bernicla*	2	Wading on beach.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Feral Pigeon	*Columba livia*	2	In flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Great Northen Diver	*Gavia immer*	1	On rocks within the water.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex I
Grey Heron	*Ardea cinerea*	1	In flight.	No	Protected Species: Wildlife Acts
Herring Gull	*Larus argentatus*	>40	Juveniles and Adults present. Wadding on beach, on intertidal rocks, and in flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Hooded Crow	*Corvus cornix*	2	In flight.	No	Protected Species: Wildlife Acts
Lesser Black-backed Gull	*Larus fuscus*	3	In flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Oystercatcher	*Haematopus ostralegus*	3	Foraging on intertidal rocks, and in flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Rock Pipit	*Anthus petrosus*	1	On cliff face and intertidal rocks.	No	Protected Species: Wildlife Acts
Rook	*Corvus frugilegus*	1	In flight.	No	Protected Species: Wildlife Acts

Table C-8: Birds recorded from Site B – 27-03-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Common Starling	*Sturnus vulgaris*	2	Perched on telephone wire.	No	Protected Species: Wildlife Acts

Eurasian Jackdaw	*Corvus monedula*	3	On grassy verge adjacent to the beach and on the beach.	No	Protected Species: Wildlife Acts
Feral Pigeon	*Columba livia*	1	In flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Great Cormorant	*Phalacrocorax carbo*	1	On intertidal rocks, and in flight.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Grey Heron	*Ardea cinerea*	1	In flight over the harbour.	Yes	Protected Species: Wildlife Acts
Herring Gull	*Larus argentatus*	7	Wading on beach, in flight, and aural recording.	No	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	1	On intertidal rocks.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Oystercatcher	*Haematopus ostralegus*	2	Wading on the beach and on intertidal rocks.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Rook	Corvus frugilegus	3	On beach and in flight.	No	Protected Species: Wildlife Acts

Table C-9: Birds recorded from Site C – 27-03-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Common Starling	Sturnus vulgaris	1	Activity around building roofs and aural recording.	No	Protected Species: Wildlife Acts
Feral Pigeon	*Columba livia*	7	Activity around railway bridge and in flight.	No	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Herring Gull	*Larus argentatus*	4	Juveniles and Adults present. In flight and perched on harbour wall.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	6	In flight, perched on harbour wall and	Yes	Protected Species: Wildlife Acts

			lamp post, and aural recording.		Birds of Conservation Concern: Amber List
Mew (Common) Gull	*Larus canus*	2	Perched on lamp post and in flight.	Yes	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Rock Pipit	*Anthus petrosus*	7	On harbour walls and in flight.	Yes	Protected Species: Wildlife Acts

Table C-10: Birds recorded from Site D – 27-03-2025.

Common name	Species name	No. counted	Description of bird activity	Within Proposed Footprint?	Designation
Common Redshank	*Tringa totanus*	5	Foraging within intertidal rocks.	No	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Common Starling	*Sturnus vulgaris*	1	Perched on lamp post.	No	Protected Species: Wildlife Acts
Great Cormorant	*Phalacrocorax carbo*	2	Within the water and in flight over water.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Grey Heron	*Ardea cinerea*	1	Perched on intertidal rocks.	Yes	Protected Species: Wildlife Acts
Herring Gull	*Larus argentatus*	>40	Juveniles and Adults present. In flight in flock, in water, and on the beach/intertidal rocks.	No	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Lesser Black-backed Gull	*Larus fuscus*	1	On beach.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List
Oystercatcher	*Haematopus ostralegus*	7	Foraging on intertidal rocks, in flight, and aural recording.	No	Protected Species: Wildlife Acts Birds of Conservation Concern: Amber List

Turnstone	*Arenaria interpres*	3	On harbour walls and on boats within the harbour.	No	Protected Species: Wildlife Acts

Appendix D: Wintering Bird Survey Photographs

Figure D-1: Turnstone recorded within Balbriggan Harbour – 15-01-2025.

Figure D-2: Sand Martin burrows recorded in sea cliff adjacent to works area – 27-03-2025.

Figure D-3: Fulmar nest recorded in sea cliff adjacent to works area – 27-03-2025.