



Comhairle Contae Chorcaí  
Cork County Council

ARUP



# N25 Little Island Pedestrian and Cyclist Bridge

Appropriate  
Assessment

Screening  
Report



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# 1. Introduction

## 1.1 Background

The information in this report has been compiled by DixonBrosnan Environmental Consultants, on behalf of the applicant. It provides information on and assesses the potential for the proposed N25 Pedestrian and Cycle Bridge, Little Island, Cork to impact on any Natura 2000 sites within its zone of influence. The information in this report forms part of and should be read in conjunction with the planning application documentation being submitted to the planning authority in connection with the proposed development.

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites and from these the conservation objectives of the site are derived. The Birds and Habitats Directives set out various procedures and obligations in relation to nature conservation management in Member States in general, and of the Natura 2000 sites and their habitats and species in particular. A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. Not only is every new plan or project captured by this requirement but each plan or project, when being considered for approval at any stage, must take into consideration the possible effects it may have in combination with other plans and projects when going through the process known as Appropriate Assessment (AA).

The obligation to undertake Appropriate Assessment (AA) derives from Article 6(3) and 6(4) of the Habitats Directive, and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. As set out in Section 177U of the Planning and Development Act 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made.

## 1.2 Aim of Report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a Natura 2000 site. This report aims to inform the Appropriate Assessment process in

determining whether the development, both alone and in combination with other plans or projects, are likely to have a significant impact on the Natura 2000 sites in the study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

This report has been prepared with regard to the following guidance documents, where relevant.

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018);
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission (EC), 2021);
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC* (European Commission, (EC) 2007);
- *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 NPW 1/10 and PSSP 2/10* (Department of Environment, Heritage and Local Government, 2010);
- *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);
- *Commission notice Guidance document on wind energy developments and EU nature legislation*, (EC 2020);
- *Communication from the Commission on the precautionary principle. European Commission* (2000)
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance* (EC 2021) and
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021).

### **1.3 Authors of Report**

This report was prepared by Carl Dixon MSc. (Ecological Monitoring) and Sorcha Sheehy PhD (Ecology/Ornithology).

Carl Dixon MSc (Ecology) is a senior ecologist who has over 25 years' experience in ecological and water quality assessments. Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental

Consultants in 2000, Carl set up and ran Core Environmental Services which included Rural Environmental Protection Scheme (REPS) planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has particular experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Dr. Sorcha Sheehy PhD (ecology/ornithology) is an experienced ecological consultant specialising in bird behaviour. Sorcha received a BSc in Applied Ecology from UCC and subsequently went on to receive a PhD in behavioural ornithology at UCC. During her PhD research, Sorcha studied bird-aircraft collision with a particular focus on bird behaviour, included field-based behavioural observations at airports, bird cadaver examination and collision classification and the use of radar tracking to model collision risk. Sorcha has worked for over 15 years in a professional ecology role and specialises in the coordination of ecology projects and assessments. She has coordinated and contributed to Habitats Directive Assessments (AA screenings and NIS) and Environmental Impact Assessment Reports (EIAR) for a range of small and large-scale projects with particular expertise in assessing impacts on birds. Notable projects include Arklow Bank Wind Park, Shannon Technology and Energy Park and Waste to Energy Facility Ringaskiddy.

## **2. Regulatory Context and Appropriate Assessment Procedure**

### **2.1 Regulatory Context**

The Habitats Directive (Council Directive 92/43/EEC on the *Conservation of Natural Habitats and of Wild Fauna and Flora*) aims to maintain or restore the favourable conservation status of habitats and species of community interest across Europe. The requirements of these directives are transposed into Irish law through the European Communities (Birds and Natural Habitats Regulations; S.I. No. 477 of 2011).

Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate sites, which form the Natura 2000 network.

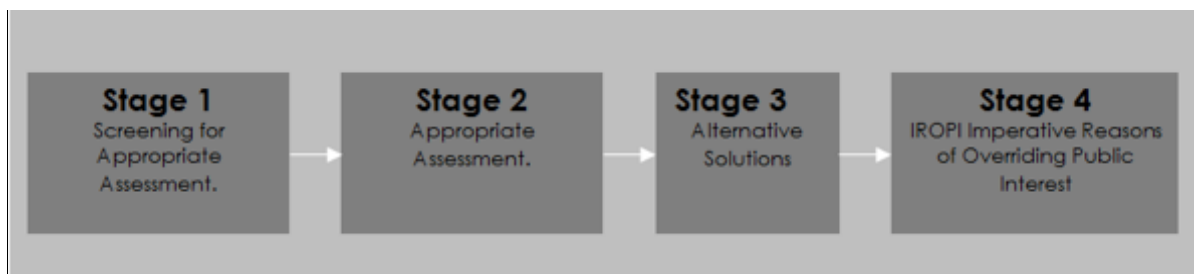
Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. A competent authority (e.g. the EPA or Local Authority) can only agree to a plan or project after having determined that it will not adversely affect the integrity of the site concerned.

The possibility of a significant effect on a designated or "European" site has generated the need for an appropriate assessment to be carried out by the competent authority for the

purposes of Article 6(3). A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

## 2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications “Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC” (2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);



The stages are as follows:

**Stage One:** Screening — the process which identifies any appreciable impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

**Stage Two:** Appropriate assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

**Stage Three:** Assessment of alternative solutions: The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site. It is confirmed that no reliance is placed by the developer on Stage Three in the context of this application for development consent;

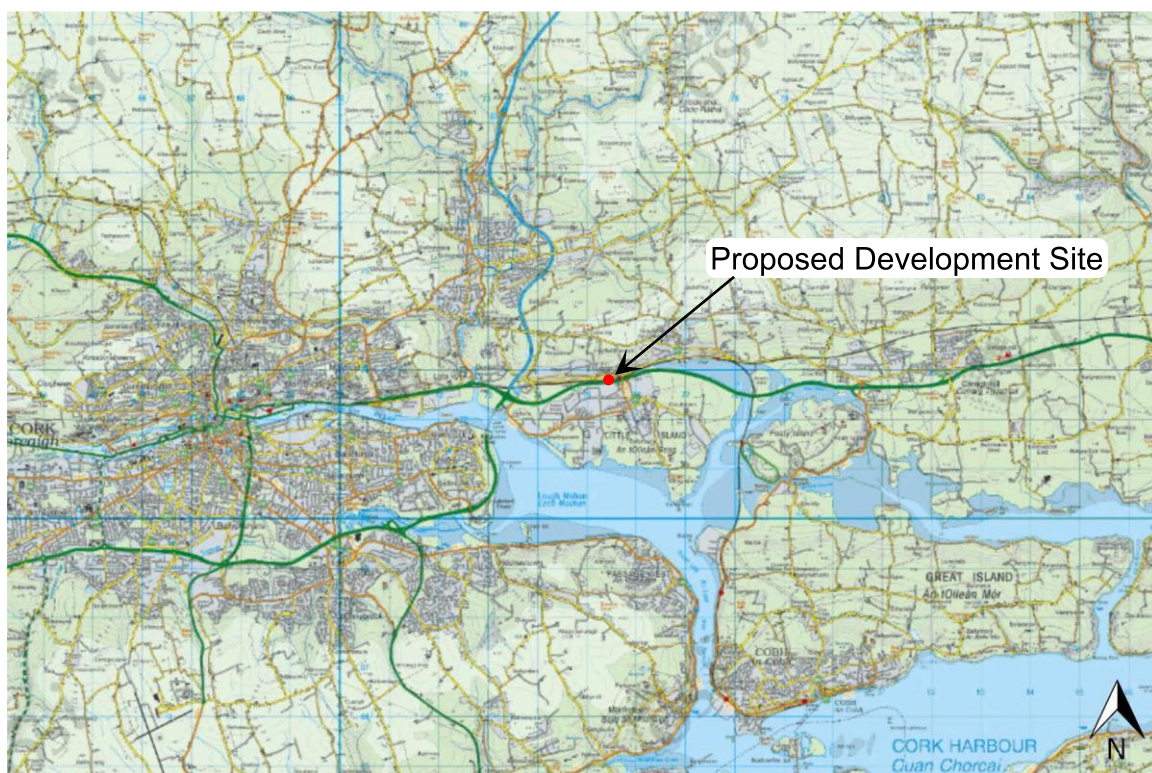
**Stage Four:** Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest). Again, for the avoidance of doubt, it is confirmed that no reliance is placed by the developer on Stage Four in the context of this application for development consent.

It is the responsibility of the competent authority to make a decision on whether or not the proposed development should be approved, taking into consideration any potential impact upon any Natura 2000 site within its zone of influence.

### 3. Receiving Environment

#### 3.1 Proposed Development Location

The proposed development site is located at Little Island, approximately 10km east of Cork City on the N25 Cork to Waterford primary route (**Figure 1**). The proposed development will be located west of the Little Island train station and will cross over the N25 and the railway line, connecting the Little Island train station, the L3004 Glounthaune Road and the Dunkettle to Carrigtwohill pedestrian and cycle route to the Eastgate Business Park in Little Island, Cork. To the north of the proposed development lies the Island Corporate Park and to the south lies the Eastgate Business Park.



**Figure 1. Site location | Source OSI.ie**

#### 3.2 Proposed Development Overview

Cork County Council (CCC), the National Transport Authority (NTA) and Arup have identified the benefits associated with the provision of a new pedestrian and cycle bridge. The proposed bridge will cross the N25 and connect the Little Island train station, the L3004 Glounthaune Road and the Dunkettle to Carrigtwohill pedestrian and cycle route to the Eastgate Business Park in Little Island, Cork. The objective of the proposed bridge is to provide efficient pedestrian and cycle connectivity between the Little Island Train Station and the Eastgate Business Park and to promote sustainable transport modes while minimizing impacts on the surrounding area and environment. The bridge alignment is shown in **Figure 2**.



The Little Island Sustainable Transport Interventions Project (LISTI) Design Options Assessment Report provides the basis for the identification of the need for the proposed pedestrian and cycle bridge and the possible locations. The benefits of a new pedestrian and cycle bridge were identified as part of the design interventions recommended on the existing public road network and Eastgate Business Park. These recommendations were to deliver enhanced access for public transport and pedestrians/cyclists to and within Little Island and between Little Island and the Little Island train station.

The proposed bridge will cross the N25 and the Cork to Midleton/Cobh train line approximately 10km to the east of Cork City Centre. The proposed crossing will be approximately 460m long and will consist of a combination of different structural forms as follows:

- Northern approach ramp: combination of earthen embankment and elevated ramp structure;
- Irish Rail span: concrete portal frame structures;
- N25 span: steel network arch structure; and
- South approach ramp: combination of elevated ramp structure, at grade sections and earthen embankment.

Multi-span reinforced concrete spans and landscaping will be used to form the approach ramps (**Figure 3**).

Works in the vicinity of the Kilcoolashil Stream will be carried out in the summer months, when water levels and flows within the stream are minimal. In the eventuality that the stream is not dry, construction works to the section of the Kilcoolashil Stream crossing the construction boundary (approx. 28m) will be bunded on either side with earthen bunds and silt screens. Water would be over pumped in the flow direction.

Apart from the area of the Kilcoolashil Stream directly affected by the bridge construction (i.e., Irish Rail portal frame), a buffer strip of 10m will be implemented around the stream with no works taking place in this area. Where this is not possible, in particular for the construction of the Irish Rail portal frame, the streambed and stream banks of the Kilcoolashil Stream in this location will be reprofiled and reinstated following construction and the bunds and silt traps removed.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines (i.e., *Control of Water Pollution from Construction Sites 2001*,” and *“Control of Water Pollution from Linear Construction Projects 2006” for best practice measures for controlling water pollution*)). Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on European sites.



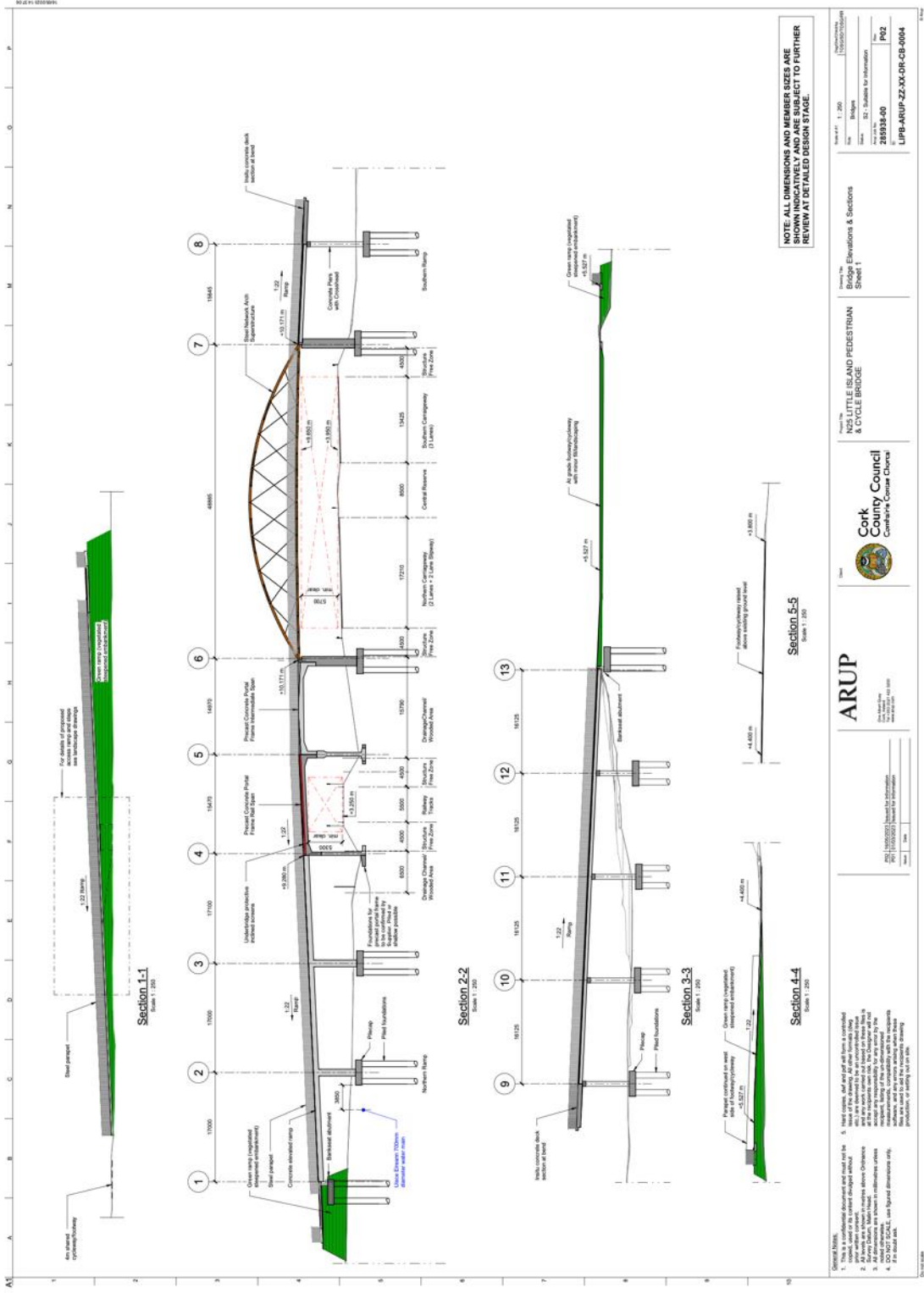


Figure 3. Proposed design of pedestrian and cycle bridge site elevations | Source Arup

## 4. Screening

### 4.1 Introduction

This section contains the information required for the competent authority to undertake screening for AA for the proposed development.

The aims of this section are to:

- Determine whether the proposed development is directly connected with, or necessary to, the conservation management of any Natura 2000 Sites;
- Provide information on, and assess the potential for the proposed development to significantly effect on Natura 2000 Sites (also known as European sites); and
- Determine whether the proposed development, alone or in combination with other projects, is likely to have significant effects on Natura 2000 sites in view of their conservation objectives.

The proposed development is not directly connected with, or necessary to the conservation management of any Natura 2000 sites.

### 4.2 Study Area and Scope of Appraisal

Natura 2000 sites (European sites) are only at risk from significant effects where a source-pathway-receptor link exists between a proposed development and a Natura 2000 site(s). This can take the form of a direct impact (e.g., where the proposed development and/or associated construction works are located within the boundary of the Natura 2000 site(s) or an indirect impact where impacts outside of the Natura 2000 site(s) affect ecological receptors within (e.g. impacts to water quality which can affect riparian habitats at a distance from the impact source).

Considering the Natura 2000 sites present in the region, their Qualifying Interests (QIs) and conservation objectives, and any potential impact pathways that could link those sites to the proposed development area, a distance of 15km was considered appropriate to encompass all Natura 2000 sites potentially within the Zone of Influence (ZoI) of the proposed development.

Thus, any appreciable direct, indirect or cumulative impacts which could arise from the proposed development in relation to the designated sites within this zone were considered.

### 4.3 Field Study

Site surveys were carried out on the 8<sup>th</sup> June 2022, 15<sup>th</sup> September 2022, 13<sup>th</sup> March 2023, 14<sup>th</sup> March 2023 and 26<sup>th</sup> May 2023 to identify the habitats, flora and fauna present at the site. Winter bird surveys were carried out on the 28<sup>th</sup> February 2022, 29<sup>th</sup> February 2022, 15<sup>th</sup> March 2022, 21<sup>st</sup> March 2022, 25<sup>th</sup> November 2022, 3<sup>rd</sup> December 2022, 28<sup>th</sup> December 2022, 28<sup>th</sup> January 2023, 29<sup>th</sup> January 2023. The surveys assessed the potential for all Qualifying Interests (QIs)/ Special Conservation Interests (SCIs) of European sites and third schedule invasive species to occur within the proposed site.

#### 4.4 Source-Pathway-Receptor Model

The likely effects of the proposed development on any European site has 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.
- A 'receptor' is defined as the SCI of SPAs or QI of SACs for which conservation objectives have been set for the European sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potential links to European sites. These are termed as 'relevant' European sites/QIs/SCIs throughout this report.

#### 4.5 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a de minimis level. The opinion of the Advocate General in CJEU case C-258/11 outlines:

*“the requirement that the effect in question be ‘significant’ exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded.*

*If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.”*

In this report, therefore, 'relevant' European sites are those within the potential ZoI of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

#### 4.6 Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the zone of influence for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the zone of influence of the proposed works;
- Identification of the most up-to-date QIs and SCIs for each European site within the zone of influence;
- Identification of the environmental conditions that maintain the QIs/SCIs at the desired target of Favourable Conservation Status;
- Identification of the threats/impacts – actual or potential that could negatively impact the environmental conditions of the QIs/SCIs within the European sites;

- Highlighting the activities of the proposed works that could give rise to significant negative impacts; and
- Identification of other plans or projects, for which in-combination impacts would likely have significant effects.

#### 4.7 Desktop Review

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to Natura 2000 sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Little Island area and information from statutory and non-statutory bodies. The following sources of information and relevant documentation were utilised:

- National Parks & Wildlife Service (NPWS) - [www.npws.ie](http://www.npws.ie)
- Environmental Protection Agency (EPA) – [www.epa.ie](http://www.epa.ie)
- National Biodiversity Data Centre (NBDC) – [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- *Cork County Development Plan 2022*;
- Birdwatch Ireland - <http://www.birdwatchireland.ie/>
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009).
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)* European Union, 2017.

## 5. Natura 2000 Sites

### 5.1 Designated sites within Zone of Influence

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 sites that can be potentially affected by the proposed development has been compiled. All candidate SAC's (cSAC) and SPAs sites within the zone of influence of the proposed development have been identified in **Table 1** and shown in **Figure 4** and **Figure 5**.

The Kilcoolishal Stream (aka Tibbotstown Stream) runs through the proposed development site, between the N25 and the railway line. Several drainage ditches traverse the proposed development site and ultimately drain into the Kilcoolishal Stream. Although this watercourse is heavily culverted in parts, this drains into Cork Harbour SPA approximately 2.6km downstream of the proposed development site. Although unlikely given the extensive surface water drainage network on the local roads in the vicinity, surface water run-off during the construction or operational phase of the proposed development could potentially flow into Cork Harbour SPA via the Kilcoolishal Stream. Habitats within or near the proposed development site could potentially provide *ex-situ* foraging grounds for SCI species outside the Cork Harbour SPA. During operation

the bridge could provide a potential collision risk for SCI species. Great Island Channel is hydrologically connected to Cork Harbour SPA.

Therefore, a source-pathway-receptor link has been identified between the source (proposed housing development) and the receptor (Cork Harbour SPA and Great Island Channel SAC) via a potential pathway (surface water runoff, the spread of invasive species and disturbance during construction/operational phase and collision during the operational phase). Further information on the Cork Harbour SPA is provided below and a full site synopsis included **Appendix 1**.

Great Island Channel SAC is located 913m east of the proposed development site. Although the topography of the site means that surface water runoff from the site would flow west and away from the SAC, the Great Island Channel is hydrologically connected to the site via Cork Harbour.

Given the distances involved and the lack of hydrological connection, no pathway for impact has been identified between the proposed development site and any other Natura 2000 site.

**Table 1. Natura 2000 sites and their location relative to the proposed development site**

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
<b>Special Area of Conservation (SAC)</b>			
Great Island Channel SAC	001058	913m east (7.2km downstream). A source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Great Island Channel SAC) via a potential pathway (impacts on water quality or spread of invasive species during construction or operational phase).	<p><b>Habitats</b></p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p>
Blackwater River (Cork/Waterford) SAC	002170	Located in separate catchment. No pathway exists	<p><b>Species</b></p> <p>1421 Killarney Fern (<i>Trichomanes speciosum</i>)</p> <p>1103 Twaite Shad (<i>Alosa fallax fallax</i>)</p> <p>1099 River Lamprey (<i>Lampetra fluviatilis</i>)</p> <p>1096 Brook Lamprey (<i>Lampetra planeri</i>)</p> <p>1095 Sea Lamprey (<i>Petromyzon marinus</i>)</p> <p>1106 Salmon (<i>Salmo salar</i>)</p> <p>1092 White-clawed Crayfish (<i>Austropotamobius palipes</i>)</p> <p>1029 Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</p> <p>1355 Otter (<i>Lutra lutra</i>)</p> <p><b>Habitats</b></p> <p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p>



Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
			<p>1220 Perennial vegetation of stony banks</p> <p>1310 Salicornia and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>3260 Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)*</p>
<b>Special Protection Area (SPA)</b>			
Cork Harbour SPA	004030	800m east (2.6km downstream). A source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Cork Harbour SPA) via a potential pathway (impacts on water quality, disturbance or spread of invasive species during construction and collision during operation).	<p><b>Birds</b></p> <p>A056 Shoveler (<i>Anas clypeata</i>)</p> <p>A149 Dunlin (<i>Calidris alpina</i>)</p> <p>A140 Golden Plover (<i>Pluvialis apricaria</i>)</p> <p>A050 Wigeon (<i>Anas penelope</i>)</p> <p>A028 Grey Heron (<i>Ardea cinerea</i>)</p> <p>A069 Red-breasted Merganser (<i>Mergus serrator</i>)</p> <p>A142 Lapwing (<i>Vanellus vanellus</i>)</p> <p>A130 Oystercatcher (<i>Haematopus ostralegus</i>)</p> <p>A141 Grey Plover (<i>Pluvialis squatarola</i>)</p> <p>A052 Teal (<i>Anas crecca</i>)</p> <p>A054 Pintail (<i>Anas acuta</i>)</p> <p>A157 Bar-tailed Godwit (<i>Limosa lapponica</i>)</p> <p>A162 Redshank (<i>Tringa totanus</i>)</p>

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
			<p>A183 Lesser Black-backed Gull (<i>Larus fuscus</i>)  A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>)  A004 Little Grebe (<i>Tachybaptus ruficollis</i>)  A160 Curlew (<i>Numenius arquata</i>)  A182 Common Gull (<i>Larus canus</i>)  A048 Shelduck (<i>Tadorna tadorna</i>)  A017 Cormorant (<i>Phalacrocorax carbo</i>)  A193 Common Tern (<i>Sterna hirundo</i>)  A005 Great Crested Grebe (<i>Podiceps cristatus</i>)  A156 Black-tailed Godwit (<i>Limosa limosa</i>)</p> <p><b>Habitats</b>  Wetlands</p>

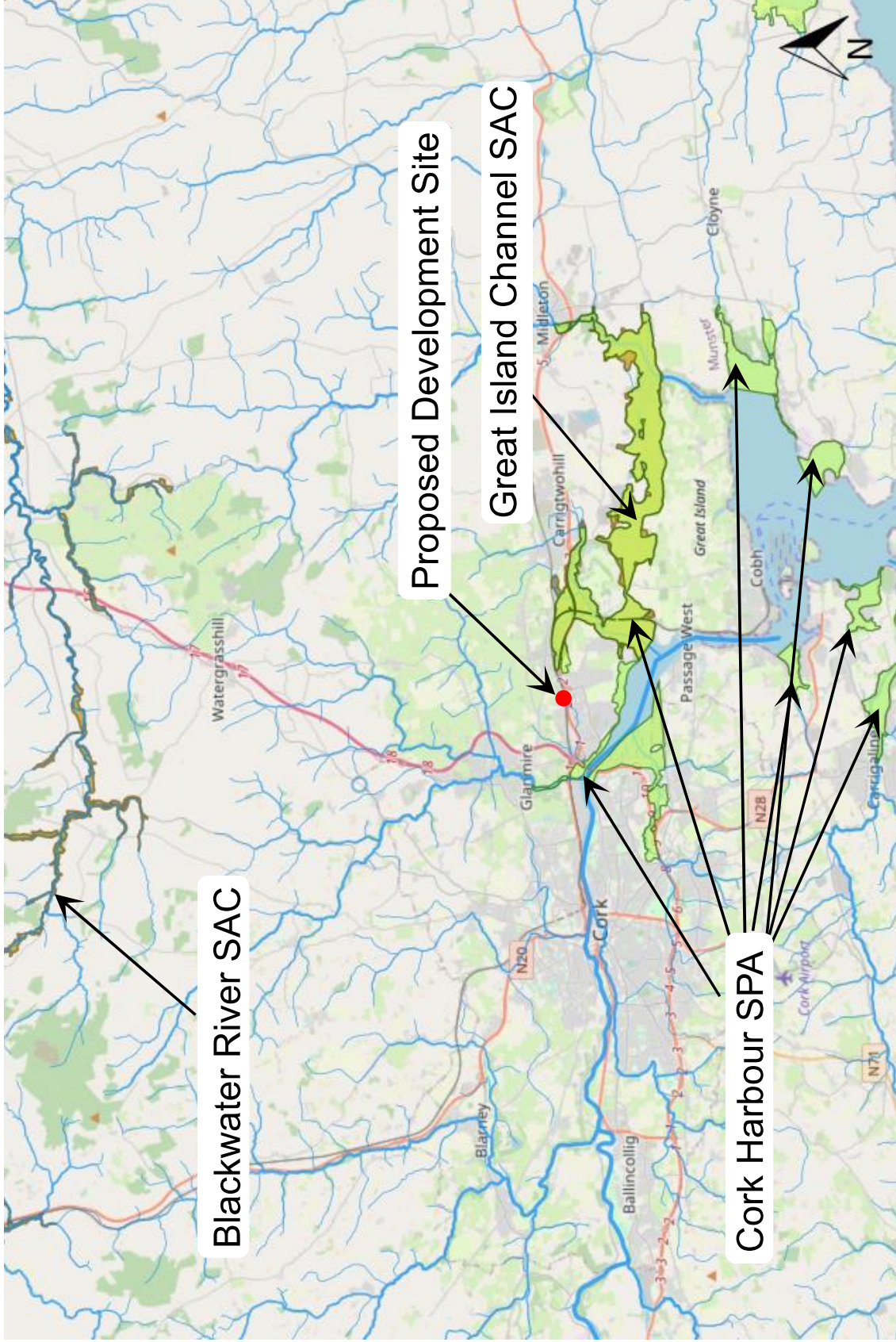


Figure 4. Natura 2000 sites within the zone of the influence of the proposed development site | Source EPA Envision Mapping | Not to scale

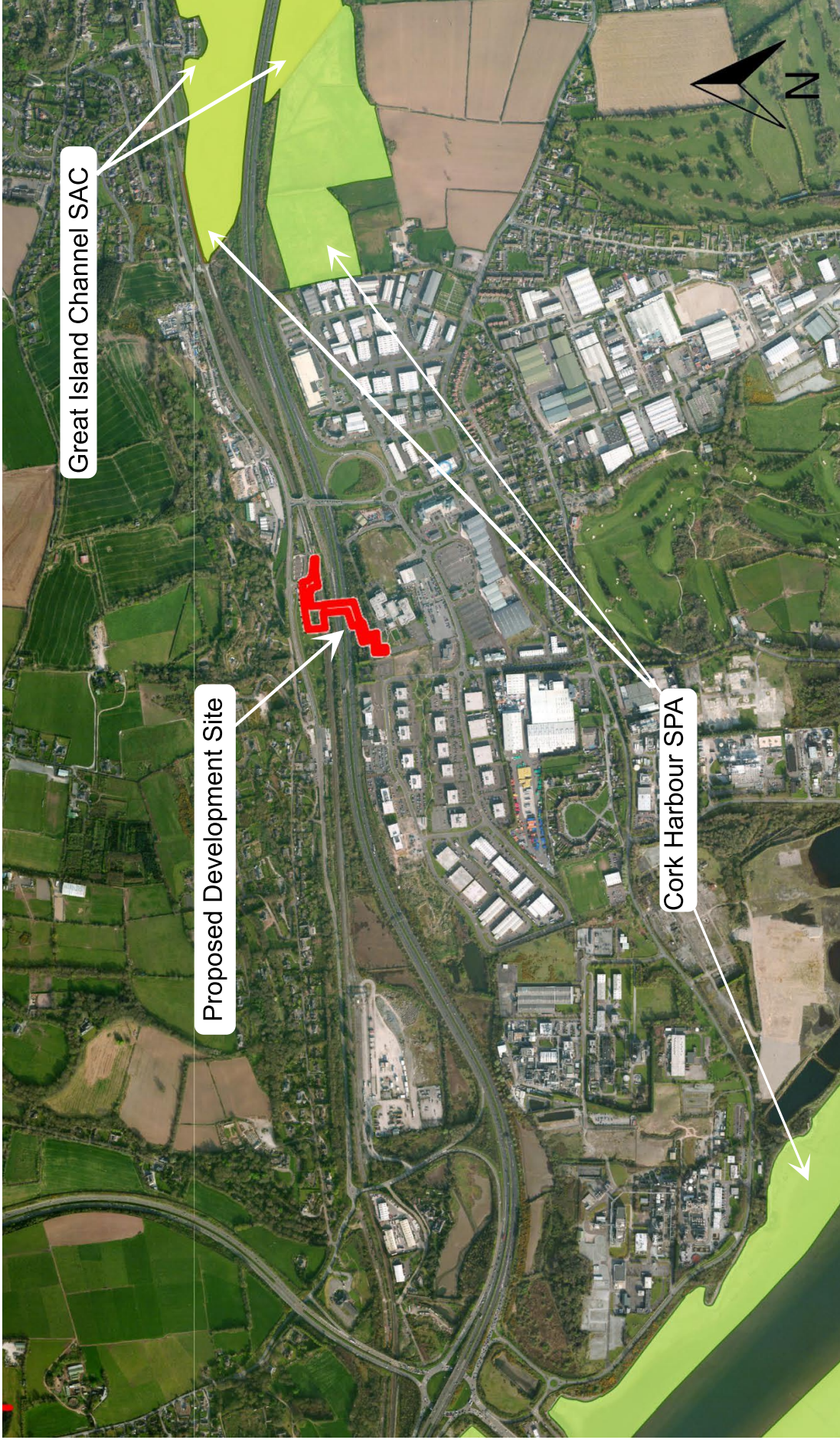


Figure 5. Cork Harbour SPA and Great Island Channel SAC relative to proposed development site | Source EPA Envision Mapping | Not to scale

## 5.2 Cork Harbour SPA (Site Code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poul nabibe inlets.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Redbreasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Blackheaded Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports internationally important populations of Black-tailed Godwit and Redshank. Nationally important populations of the following 19 species occur: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew and Greenshank. The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute Swan, Whooper Swan, Pochard, Gadwall, Tufted Duck, Goldeneye, Coot, Ringed Plover, Knot and Turnstone. Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed Gull, Common Gull and Lesser Black-backed Gull all of which occur in numbers of national importance. Little Egret and Mediterranean Gull, two species which have recently colonised Ireland, also occur at this site.

Cork Harbour has a nationally important breeding colony of Common Tern. The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

A full site synopsis for the Cork Harbour SPA is included as **Appendix 1** of this report.

## 5.3 Great Island Channel SAC (Site Code 001058)

This site comprises the north-eastern part of Cork Harbour. It includes all of the Great Island Channel, the intertidal areas between Fota Island and Little Island, and also the estuary of the Dungourney and Owennacurra Rivers as far as Midleton. The North Channel is on average 1km wide but extends for about 9km from east to west. The area is well sheltered, and the intertidal sediments are predominantly fine muds. In addition to the estuarine habitats, the site includes some wet grassland areas which are used by roosting birds, as well as some broad-leaved woodland at Fota Island. Compared to the rest of Cork Harbour, the Great Island Channel is relatively undisturbed, with aquaculture the main activity. The site is of ecological importance for its examples of intertidal mud and sand flats and Atlantic salt meadows of the estuarine type. Both habitats are fairly extensive in area and of moderate to good quality.

A full site synopsis for the Great Island Channel SAC is included as **Appendix 1** of this report.

#### 5.4 Natura 2000 sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as ‘qualifying interests’ and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A ‘qualifying interest (QI)’ (or ‘special conservation interest (SCI)’ in the case of SPAs) is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The conservation objectives for the Great Island Channel SAC are detailed in: *NPWS (2014) Conservation Objectives: Great Island Channel SAC 001058. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

The NPWS state that the conservation objectives for Great Island Channel SAC should be used in conjunction with those for Cork Harbour SPA as appropriate.

The conservation objectives for Cork Harbour SPA site are detailed in: *NPWS (2014) Conservation Objectives: Cork Harbour SPA 004030. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and SACs and SPAs are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status sites designated as SACs and SPAs. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable. The species and habitats listed as QIs/SCIs for the Great Island Channel SAC and Cork Harbour SPA and specific conservation objectives are included in **Tables 2** and **3**.

**Table 2. Qualifying Interests (Qis) for the Great Island Channel SAC**

Habitat Code	Habitat	Conservation objective
1140	Mudflats and sandflats not covered by seawater at low tide	Maintain
1330	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )	Restore

Restore = Restore favourable conservation condition, Maintain = Maintain favourable conservation condition

**Table 3. Special Conservation Interests (SCIs) for the Cork Harbour SPA**

Species code	Species	Scientific name	Conservation objective
A004	Little Grebe	<i>Tachybaptus ruficollis</i>	Maintain
A005	Great Crested Grebe	<i>Podiceps cristatus</i>	Maintain
A017	Cormorant	<i>Phalacrocorax carbo</i>	Maintain
A028	Grey Heron	<i>Ardea cinereal</i>	Maintain
A048	Shelduck	<i>Tadorna tadorna</i>	Maintain
A050	Wigeon	<i>Anas Penelope</i>	Maintain
A052	Teal	<i>Anas crecca</i>	Maintain
A054	Pintail	<i>Anas acuta</i>	Maintain
A056	Shoveler	<i>Anas clypeata</i>	Maintain
A069	Red-breasted Merganser	<i>Mergus serrator</i>	Maintain
A130	Oystercatcher	<i>Haematopus ostralegus</i>	Maintain
A140	Golden Plover	<i>Pluvialis apricaria</i>	Maintain
A141	Grey Plover	<i>Pluvialis squatarola</i>	Maintain
A142	Lapwing	<i>Vanellus vanellus</i>	Maintain
A149	Dunlin	<i>Calidris alpina</i>	Maintain
A156	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
A157	Bar-tailed Godwit	<i>Limosa lapponica</i>	Maintain
A160	Curlew	<i>Numenius arquata</i>	Maintain
A162	Redshank	<i>Tringa totanus</i>	Maintain
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Maintain
A182	Common Gull	<i>Larus canus</i>	Maintain
A183	Lesser Black-backed Gull	<i>Larus fuscus</i>	Maintain
A193	Common Tern	<i>Sterna hirundo</i>	Maintain
A999	Wetland and Waterbirds		Maintain

Restore = Restore favourable conservation condition, Maintain = Restore favourable conservation condition

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a further objective is to maintain or restore the favourable conservation condition of the wetland habitat within the Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

## 5.5 Status of qualifying interests for the Great Island Channel SAC

A number of surveys on the qualifying interests of the Great Island Channel Special Area of Conservation (SAC) (site code 001058) was conducted in 2014 on behalf of Cork County Council (O'Neill, *et. al.*, 2014). The objective of these surveys was to determine the current conservation status of these features, and to assess the likely impacts on the SAC in relation to increased wastewater loadings generated by the 2022 population targets given in the draft Cork County Development Plan 2013.

It was concluded that Mudflats and sandflats are currently at an unfavourable/bad condition, however the prospects of recovery are good, if detailed recommendations are followed. The main issues relating to the conservation status of the habitat are pollution and *Spartina* invasion (O'Neill, *et. al.*, 2014).

With regard to Atlantic salt meadows, the current condition was deemed to be unfavourable to Inadequate, however, the prospects of recovery are good to fair, if the recommendations outlined are followed.; the time frame is uncertain due to complexity of processes involved and insufficient data on the physical sedimentary and tidal processes in the SAC. The main issues relating to the conservation status of the habitat are coastal squeeze, *Spartina* invasion and erosion (O'Neill, *et. al.*, 2014).

The specific conservation objectives for habitats within the Great Island Channel SAC (**Table 4**) is to maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Great Island Channel SAC and to restore the favourable conservation condition of Atlantic salt meadows (*GlaucoPuccinellietalia maritimae*) in Great Island Channel SAC.

Human communities and industries often discharge wastewaters into estuaries, influencing their organic and pollutant loading, benthic community and trophic structure. The deleterious effects of excessive nutrient enrichment include increases in the frequency and duration of phytoplankton blooms (in some cases of nuisance and toxin emitting species), depletion of dissolved oxygen resulting in the mortality of marine organisms, and changes to the structure and functioning of marine food webs. In addition, nutrient enriched waters may experience excessive growth and stranding's of macroalgae that typically produce very strong odours and visual impact as they degrade on beaches and shorelines (EPA, 2008).

The position of estuaries at the foot of the watershed and their open connection to the sea makes them subject to almost continuous input of nutrients (Neilson & Cronin, 1981). Although estuaries cycle large quantities of nutrients, these same nutrients if put in excessive amounts can be highly detrimental to estuarine and coastal ecosystems (Neilson & Cronin, 1981).

**Table 4. QI habitats for which a potential impact has been identified – specific targets**

Habitats	Attribute	Measure	Target
Mudflats and sandflats not covered by seawater at low tide	Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes
	Community distribution	Hectares	Conserve the following community type in a natural condition: Mixed sediment to sandy mud with polychaetes and oligochaetes community complex



Habitats	Attribute	Measure	Target
Atlantic salt meadows ( <i>Glaucopuccinellietalia maritimae</i> )	Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Bawnard - 0.29ha; Carrigatohil - 1.01ha
	Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
	Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
	Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
	Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
	Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% area outside creeks vegetated
	Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)
	Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass ( <i>Spartina anglica</i> ), with an annual spread of less than 1% where it is known to occur

## 5.6 Status of qualifying interests for the Cork Harbour SPA

Cork Harbour SPA is a large, sheltered bay system that is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top ten sites in the country. Owing to the sheltered conditions, the intertidal flats are often muddy in character but described principally as ‘mixed sediment to sandy mud with polychaetes and oligochaetes’. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Peringia (Hydrobia) ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*, all of which provide a food source for many wintering waterbird species. Salt marshes are scattered through the site and these provide high tide roosts for waterbirds (NPWS 2014).

The species listed as Special Conservation Interests of the Cork Harbour SPA and their conservation status are shown in **Table 5**. BirdWatch Ireland determined Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Birds species listed in Annex I of the Birds Directive (2009/147/EC) are considered a conservation priority.

**Table 5. Conservation status of SCI species for Cork Harbour SPA.**

Species		Annex I of Birds Directive	BOCCI*	
			Red List	Amber List
<i>Phalacrocorax carbo</i>	Cormorant			X
<i>Numenius arquata</i>	Curlew		X	
<i>Limosa limosa</i>	Black-tailed Godwit		X	
<i>Limosa lapponica</i>	Bar-tailed Godwit	X	X	
<i>Tringatotanus</i>	Redshank		X	
<i>Anas penelope</i>	Wigeon			X
<i>Anas crecca</i>	Teal			X
<i>Tachybaptus ruficollis</i>	Little Grebe			X
<i>Larus ridibundus</i>	Black-headed Gull			X
<i>Larus canus</i>	Common Gull			X
<i>Larus fuscus</i>	Lesser Black-backed Gull			X
<i>Vanellus vanellus</i>	Lapwing		X	
<i>Haematopus ostralegus</i>	Oystercatcher		X	
<i>Tadorna tadorna</i>	Shelduck			X
<i>Ardea cinerea</i>	Grey Heron			
<i>Podiceps cristatus</i>	Great Crested Grebe			X
<i>Anas acuta</i>	Pintail		X	
<i>Anas clypeata</i>	Shoveler		X	
<i>Mergus serrator</i>	Red-breasted Merganser			
<i>Pluvialis apricaria</i>	Golden Plover	X	X	
<i>Pluvialis squatarola</i>	Grey Plover		X	
<i>Calidris alpina</i>	Dunlin	X	X	
<i>Sterna hirundo</i>	Common Tern	X		X

\* Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 43: 1-22

The reasons that these species are listed as Special Conservation Interests for the Cork Harbour SPA are as follows (NPWS 2014):

1. During winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,009 individuals.

2. During winter the site regularly supports 1% or more of the all-Ireland population of Wigeon (*Anas penelope*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,791 individuals.
3. During winter the site regularly supports 1% or more of the all-Ireland population of Teal (*Anas crecca*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,065 individuals.
4. During winter the site regularly supports 1% or more of the all-Ireland population of Pintail (*Anas acuta*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 57 individuals.
5. During winter the site regularly supports 1% or more of the all-Ireland population of Shoveler (*Anas clypeata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 103 individuals.
6. During winter the site regularly supports 1% or more of the all-Ireland population of Red-breasted Merganser (*Mergus serrator*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 121 individuals.
7. During winter the site regularly supports 1% or more of the all-Ireland population of Little Grebe (*Tachybaptus ruficollis*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 57 individuals.
8. During winter the site regularly supports 1% or more of the all-Ireland population of Great Crested Grebe (*Podiceps cristatus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 253 individuals.
9. During winter the site regularly supports 1% or more of the all-Ireland population of Cormorant (*Phalacrocorax carbo*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 521 individuals.
10. During winter the site regularly supports 1% or more of the all-Ireland population of Grey Heron (*Ardea cinerea*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 80 individuals.
11. During winter the site regularly supports 1% or more of the all-Ireland population of Oystercatcher (*Haematopus ostralegus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,809 individuals.
12. During winter the site regularly supports 1% or more of the biogeographic population of the Annex I species Golden Plover (*Pluvialis apricaria*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,342 individuals.
13. During winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 95 individuals.
14. During winter the site regularly supports 1% or more of the all-Ireland population of Lapwing (*Vanellus vanellus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 7,569 individuals.

15. During winter the site regularly supports 1% or more of the all-Ireland population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 9,621 individuals.

16. During winter the site regularly supports 1% or more of the biogeographical population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,896 individuals.

17. During winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Bar-tailed Godwit (*Limosa lapponica*). The mean peak number within the SPA during the baseline period (1995/96 – 1999/00) was 233 individuals.

18. During winter the site regularly supports 1% or more of the all-Ireland population of Curlew (*Numenius arquata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,237 individuals.

19. During winter the site regularly supports 1% or more of the biogeographical population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,149 individuals.

20. During winter the site regularly supports 1% or more of the all-Ireland population of Black-headed Gull (*Chroicocephalus ridibundus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,640 individuals.

21. During winter the site regularly supports 1% or more of the all-Ireland population of Common Gull (*Larus canus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,562 individuals.

22. During winter the site regularly supports 1% or more of the all-Ireland population of Lesser Black-backed Gull (*Larus fuscus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 783 individuals.

23. The site is selected for the breeding Annex I species Common Tern (*Sterna hirundo*). In 1995, 102 pairs were breeding at this site. This exceeds the All-Ireland 1% threshold for this species.

24. The wetland habitats contained within Cork Harbour SPA are identified of conservation importance for non-breeding (wintering) migratory waterbirds. Therefore, the wetland habitats are considered to be an additional Special Conservation Interest.

It is noted that for a number of SCI species i.e., Redshank and Golden Plover Cork Harbour no longer supports 1% of the biogeographical population and some of the other species (e.g., Grey Plover) no longer occur in nationally important numbers. Furthermore, the peak total waterbird numbers are now less than 20,000.

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (**Table 6**) are to maintain a favourable conservation condition of the non-breeding/breeding waterbirds and to maintain the favourable conservation condition of the wetland habitat at Cork Harbour SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

**Table 6. SCI species for which a potential impact has been identified – specific targets**

Species/Habitats	Attribute	Measure	Target
Little Grebe Great Crested Grebe Cormorant Grey Heron Shelduck	Population trend	Percentage change	Long term population trend stable or increasing
Wigeon Teal Pintail Shoveler Red-breasted Merganser Oystercatcher Golden Plover Grey Plover Lapwing Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Black-headed Gull Common Gull Lesser Black-backed Gull	Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by each species, other than that occurring from natural patterns of variation
Common Tern	Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline

Species/Habitats	Attribute	Measure	Target
	Productivity rate: fledged young per breeding pair	Mean number	No significant decline
	Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
	Prey biomass available	Kilogrammes	No significant decline
	Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
	Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population
Wetlands	Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation

## 6. Water Quality - River Basin Management Plan for Ireland 2022-2027 (3<sup>rd</sup> Cycle)

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are very significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

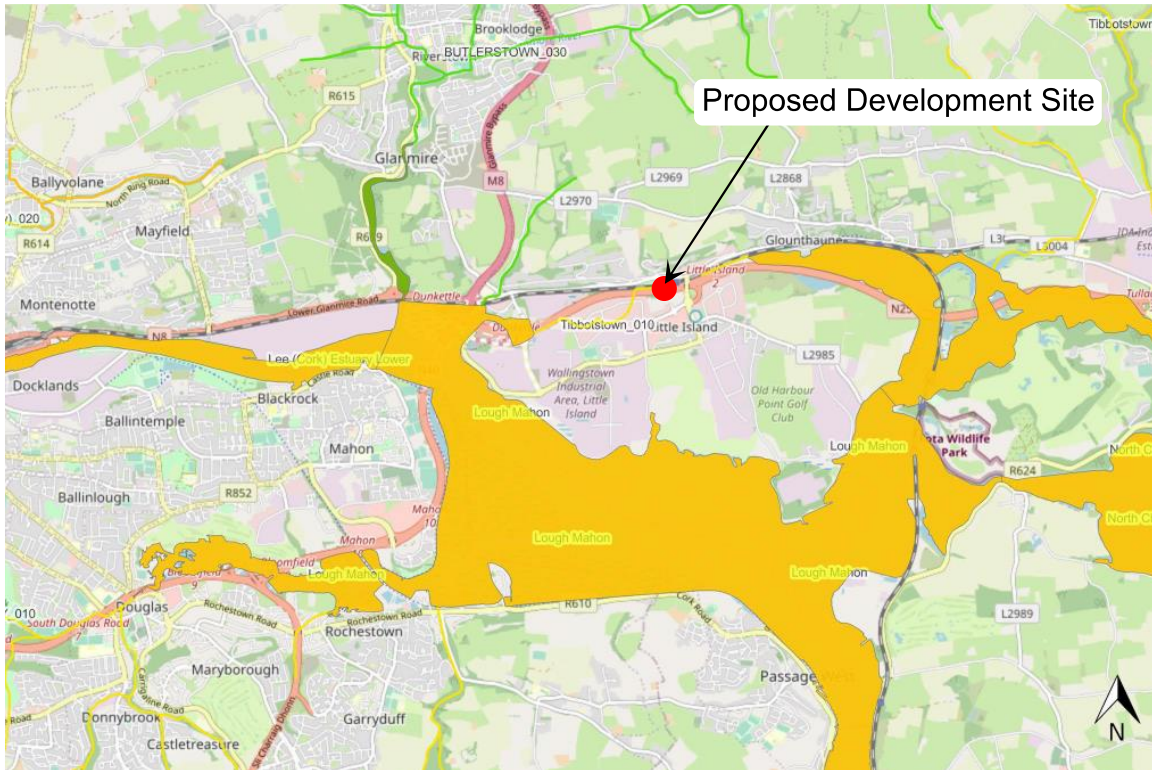
The third-cycle RBMP aims to build on the progress made during the first cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban waste-water on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are At Risk of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the waterbodies is included in **Table 7**. The location of WFD monitoring locations relative to the proposed development site are illustrated in **Figure 6**.

**Table 7. Water Framework Directive Data 3<sup>rd</sup> Cycle – Relevant data**

<b>Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) – 2<sup>nd</sup> Cycle</b>			
<p>This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km<sup>2</sup>. The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km<sup>2</sup>.</p> <p>The proposed development site is located within the Sub-catchment Tibbotstown_SC_010. There is just one river water body in this sub-catchment which is under REVIEW due to its unassigned status, Tibbotstown_010.</p> <p>Further investigation is required so as to determine whether any issues exist within this water body.</p>			
<b>Waterbodies relevant to the proposed project</b>			
<b>Waterbody</b>	<b>WFD Risk</b>	<b>WFD Status (2013-2018)</b>	<b>Pressure Category</b>
Tibbotstown	Review	Moderate	Non specified
Lough Mahon	At risk	Moderate	Urban wastewater
Cork Harbour	At risk	Moderate	Anthropogenic pressures

Source: EPA envision mapping and [www.catchments.ie](http://www.catchments.ie)



**Figure 6. WFD waterbodies in the vicinity of the proposed development | Source EPA envision mapping | not to scale**

## 7. Site Surveys

### 7.1. Habitats

Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the Proposed Development site were classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required. The survey results are representative of the habitats within the Proposed Development site and include the dominant and characteristic species of flora.

An overview of habitats recorded within the site is shown in **Figure 7**. The habitats recorded onsite as well as their ecological value is detailed in **Table 8**. No rare plant species were recorded within the works area during the site survey. Site photographs are also included below.

**Table 8. Habitats recorded within Proposed Development site boundary**

Habitat	Comments
<b>Buildings and artificial surfaces BL3/Amenity grassland GA2</b>	The N25 national route, the Cork city to Cobh railway line and parking areas associated with the Radisson Blu Hotel and the Railway Station are classified as artificial surfaces which are of minimal ecological value. The areas of amenity grassland which surround these developments are regularly maintained, with existing palisade fences, streetlighting and other artificial surfaces area. Species noted within area include common grass species as well as Dandelion <i>Taraxacum officinale</i> , Spear thistle <i>Cirsium vulgare</i> , Groundsel <i>Senecio vulgaris</i>



Habitat	Comments
	<p>Yorkshire fog <i>Holcus lanatus</i> and Cleavers <i>Galium aparine</i>. In proximity to the recycling area in the car park, there is some Buddleia <i>Buddleia davidii</i> and immature Willow <i>Salix</i> sp.</p> <p>This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.</p>
<p><b>Mixed broadleaved woodland WD1</b></p>	<p>On the southern boundary of the N25 there a relatively large block of broadleaved woodland between the road and the Radisson Blu Hotel access road/car park. Woodland cover is dense, creating heavy shade. A drain flows through a section of this woodland east to west.</p> <p>There are several trees mature trees within this woodland including Beech <i>Fagus sylvatica</i>, Ash <i>Fraxinus excelsior</i> and Lime <i>Tilia cordata</i> on the southern edge of this habitat close to the hotel. A review of historical mapping indicates that these trees were part of the landscaping associated with the period dwelling (Castle View) which is evident on the older maps. However, there is no woodland evident to the north of the drainage ditch on the older OS maps with open fields shown on the relevant maps (OS historical map, 25 inch)</p> <p>This southern section of woodland is characterised by older trees which are quite widely spaced with a heavily shaded. The understorey dominated by Ivy <i>Hedera helix</i> with Lord and ladies <i>Arum maculatum</i> and a dense stand of the non-native species Japanese Laurel <i>Aucuba japonica</i>.</p> <p>The northern section of this woodland is of more recent origin and has developed on an area that was historically farmland. The species in this planted woodland is diverse and includes Willow <i>Salix</i> sp., Sitka Spruce <i>Picea sitchensis</i>, Alder <i>Alnus glutinosa</i>, Ash and Poplar <i>Populus</i> sp. The trees are closely spaced with few side branches and the understorey is heavily shaded. Many of these trees are leaning, fallen or in poor condition.</p> <p>Under story species include immature Sycamore, Elder <i>Sambucus nigra</i> with occasional Hawthorn <i>Crataegus monogyna</i> and Holly <i>Ilex aquifolium</i>.</p> <p>Shade levels in the ground layer are high, with Ivy being the dominant species. Understorey species include Chilean Myrtle <i>Luma apiculata</i>, Bramble <i>Rubus</i> sp., Hartstongue fern <i>Asplenium scolopendrium</i>, Male fern <i>Dryopteris filix-mas</i>, Lady Fern <i>Athyrium filix-femina</i> and Honeysuckle <i>Lonicera</i> sp. Immature Sycamore are very common and over time are likely to dominate the canopy. There is a wetter area close to the N25 which supports some mature Willow which have been cut back. During wet weather, some ponded surface water was evident.</p> <p>In general, the woodland structure in this area is relatively poor with a high percentage of non-native species. Sycamore is likely to become dominant over time. However, as a mixed woodland which is not highly disturbed by recreational usage, it does provide a refuge for fauna and is a habitat that is not prevalent in the local landscape.</p> <p>This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.</p>
<p><b>Drainage Ditches FW4/Depositing River FW2</b></p>	<p>Within the block of broadleaved woodland between the N25 and the Radisson Blu Hotel access road, there is a linear, drain running east-west. This drain is heavily shaded with minimal flows during dry weather.</p> <p>The Kilcoolishal Stream also is located along the southern boundary of the railway track. The Kilcoolishal Stream in this area of more characteristic of a drainage ditch, however as this has been mapped as a stream by the EPA, the classification of FW2 has been used. In general, this watercourse is heavily shaded by woodland within the Proposed Development site. Adjacent to the railway line there are some more open</p>

Habitat	Comments
	<p>areas of habitat. Flows here are sluggish with dense masses of Duckweed <i>Lemna minor</i> and emerging vegetation such as Reeds <i>Phragmites</i> sp., Water parsnip <i>Sium suave</i>, Sweet grass <i>Hierochloe odorata</i>.</p> <p>A deep drainage ditch runs along the northern boundary of the railway line and near the Railway line car park. This ditch has minimal flows and with high levels of shade from adjoining trees, many of which actually grow within the channel itself. As indicated by the trees within the channel, the fluctuations in water level vary considerably with high levels during flood events. This drain is hydrologically connected to the adjoining wet willow woodland. Aquatic vegetation is largely absent. Duckweed <i>Lemna</i> sp. forms dense mats in places and some water Starwort <i>Callitriche</i> sp. occurs.</p> <p>Within the southern woodland, there is an open channel with standing water. This drainage ditch is heavily shaded with dense rotting wood and leaf litter.</p> <p>This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.</p>
<p><b>Treeline WL2 Mixed broadleaved woodland WD1</b></p>	<p>Running between the Kilcoolishal Stream and the N25 there is a narrow band of woodland, some of which was planted as part of the landscaping scheme for the N25. Hazel is prominent with Buddleia, also present. Other species recorded include Hawthorn, Chilean myrtle, Privet <i>Ligustrum ovalifolium</i> and Blackthorn <i>Prunus spinosa</i>. The understory has a dense covering of Winter heliotrope <i>Arctostaphylos luciana</i> and Ivy <i>Hedera helix</i> with some Bramble. Stands of immature Japanese Knotweed <i>Reynoutria japonica</i> were recorded within this habitat.</p> <p>It is noted that there are older trees which may pre-date the landscape scheme running along the bank of the Kilcoolishal Stream. These include Hawthorn and Holly. The Hawthorn supports moderate levels of ivy.</p> <p>To the north of the railway track there is a treeline and species recorded in this area include Alder, Grey willow <i>Salix cinerea</i>, Ash, Hazel and Hawthorn.</p> <p>Immature planted Ash with occasional Willow run along the boundary of the eastern side of the Railway carpark as well as immature Alder along the south of the carpark. This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.</p>
<p><b>Wet willow woodland WN6</b></p>	<p>An area of wet woodland is located largely outside the Proposed Development area. This habitat floods during periods of wet weather. The woodland is dominated by Willow with some Alder. Hawthorn is occasional on drier ground and some Ash saplings were also recorded.</p> <p>The understory composition depends on the degree of water logging with Bramble and Hawthorn common on dryer areas. Winter heliotrope is common within dryer areas and along the woodland boundary with amenity grassland. Within waterlogged areas species recorded include Remote sedge <i>Carex remota</i>. Moss coverage on trees is high and some fern such as Hartstongue and Soft shield fern also occur. Other species include Wood dock <i>Rumex sanguineus</i>, Cleavers, Soft rush <i>Juncus effusus</i>, Herb Robert <i>Geranium robertianum</i>, Hard fern. Lords and ladies, Honeysuckle, Ivy and Soft shield fern.</p> <p>This is a relatively uncommon habitat which floods very regularly and is hydrologically connected to the drain which runs along the railway track.</p> <p>Japanese Knotweed was recorded on the eastern periphery of this woodland area.</p> <p>This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.</p>
<p><b>Amenity grassland GA2/Scattered tree and parkland WD5</b></p>	<p>Low value grassland with a mix of common grass and herbaceous species. The largest area of this habitat is located just north of the railway track. Smaller areas of amenity grassland area associated with car parks to the south of the N25.</p> <p>This habitat supports common herbaceous and grass species including Broadleaved dock <i>Rumex obtusifolius</i>, Red fescue <i>Festuca rubra</i>, Yorkshire Fog, Dandelion, Eyebright <i>Euphrasia rostkoviana</i>, Ribwort Plantain <i>Plantago lanceolata</i>, Oxeye Daisy <i>Leucanthemum vulgare</i>, Common mouse-ear <i>Cerastium fontanum</i> and Creeping</p>

Habitat	Comments
	buttercup <i>Ranunculus repens</i> . It is regularly maintained, and biodiversity is generally low. Within this habitat there are small number of planted trees, i.e., one semi mature Willow on the periphery of the woodland area and some smaller recently planted Oak. Semi-mature Sycamore, Birch and Beech are also present. In immediate proximity to the railway line, there is a small number of older mature Willow. The main stems are relatively old with younger regrowth and accumulated deadwood material at their base. This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.
<b>Dry meadow and grassy verge GS1</b>	Linear sections of this habitat type occur along the margins of the N25. This habitat supports a mixture of early successional herbaceous species and common grass species. This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.
<b>Hedgerow WL1</b>	There is a well-maintained planted hedgerow in the central median of the N5. A planted Beech hedgerow is located on the southwestern boundary of the Radisson Blu Hotel car park. Wild Clematis <i>Clematis virginiana</i> was also recorded in this area. This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.
<b>Scrub WS1</b>	An area of dense scrub is located along the southern boundary of the Railway line car park. This is area is dominated by Nettle, Bramble, Winter heliotrope, Cleavers and Bindweed <i>Convolvulus</i> sp. This habitat is not a qualifying habitat for European sites and is not an Annex I habitat under the Habitats Directive.



Figure 7. Habitats recorded within proposed development site boundary



**Plate 1. Older widely spaced trees in southern woodland**



**Plate 2. Woodland area with Japanese Laurel prevalent**



**Plate 3. Southern woodland**



**Plate 4. Drainage ditch in southern woodland**



**Plate 5. Radisson Blu carpark looking from car park towards woodland**



**Plate 6. Hedgerow within Radisson Blue carpark**



**Plate 7. Amenity grassland near northern boundary**



**Plate 8. Amenity grassland on northern boundary with woodland**



**Plate 9. Willow within amenity grassland**



**Plate 10. Wet woodland with high water levels**



**Plate 11. Dense bramble and Winter heliotrope on woodland/amenity grassland boundary**



**Plate 12. Trees along amenity grassland**



**Plate 13. Treeline growing along and within drainage ditch near railway line**



**Plate 14. Kilcoolishal Stream**



**Plate 15. Woodland between N25 and Kilcoolishal Stream**



**Plate 16. Hedgerow in N25 median.**



**Plate 17. Bramble scrub and treeline along Railway line car park**



**Plate 18. Immature Ash and winter heliotrope near Railway line car park**

## 7.2 Birds

### 7.2.1 Breeding Birds

The NBDC has recorded 16 Annex I bird species within hectad W77 i.e., Bar-tailed Godwit (*Limosa lapponica*), Kingfisher (*Alcedo atthis*), Common Tern (*Sterna hirundo*), Corn Crake (*Crex crex*), Dunlin (*Calidris alpina*), Golden Plover (*Pluvialis apricaria*), Great Northern Diver (*Gavia immer*), Hen Harrier (*Circus cyaneus*), Little Egret (*Egretta garzetta*), Little Gull (*Larus minutus*), Mediterranean Gull (*Larus melanocephalus*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*), Red-throated Diver (*Gavia stellata*), Short-eared Owl (*Asio flammeus*) and Whooper Swan (*Cygnus cygnus*). There are no breeding habitats for these Annex I species within the Proposed Development site. While some species could potentially overfly and/or forage in the area e.g., Peregrine Falcon and Merlin, there are no valuable foraging habitats for these Annex I species within the Proposed Development site.

Bird surveys were carried out in summer/autumn 2022 and spring 2023. Species recorded within the Proposed Development site are listed in **Table 9**.

**Table 9. Birds recorded at Proposed Development site**

Species		Birds Directive Annex	BOCCI*	
		I	Red List	Amber List
Blackbird	<i>Turdus merula</i>			
Blue Tit	<i>Cyanistes caeruleus</i>			
Chaffinch	<i>Fringilla coelebs</i>			
Chiffchaff	<i>Phylloscopus collybita</i>			
Dunnock	<i>Prunella modularis</i>			
Great Tit	<i>Parus major</i>			
Jackdaw	<i>Corvus monedula</i>			
Magpie	<i>Pica pica</i>			
Mistle Thrush	<i>Turdus viscivorus</i>			
Robin	<i>Erithacus rubecula</i>			
Rook	<i>Corvus frugilegus</i>			
Song thrush	<i>Turdus philomelas</i>			
Starling	<i>Sturnus vulgaris</i>			X
Swallow	<i>Hirundo rustica</i>			X
Woodpigeon	<i>Columba palumbus</i>			



Species		Birds Directive Annex	BOCCI*	
		I	Red List	Amber List
Wren	<i>Troglodytes troglodytes</i>			

\* Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 43: 1-22

Most of bird species recorded within the Proposed Development were common green listed (Gilbert *et al.* 2021) species such as Chaffinch *Fringilla coelebs*, Chiffchaff *Phylloscopus collybita*, Robin *Erithacus rubecula*, Rook *Corvus frugilegus*, Blackbird *Turdus merula*, Song thrush *Turdus philomelas*, Wren *Troglodytes troglodytes* and Woodpigeon *Columba palumbus*. Two Amber list, birds of conservation concern i.e., Swallow and Starlings, were recorded during site surveys.

The most valuable breeding habitat for birds are the area of woodland to the south of the N25, the wet willow woodland and the treelines to the north of the N25 near the railway line. Woodland areas in particular are largely impenetrable and provide important refuges in what is an otherwise disturbed area. Areas of amenity grassland, provide small areas of foraging habitat for woodland edge species such as Blackbird and Robin. Waterlogged areas could potentially provide habitat for aquatic bird species such as Moorhen and Mallard. Overall, the Proposed Development site is of Local importance (higher value) for breeding birds.

### 7.2.2 Wintering Birds

#### *Irish Wetland Bird Survey (I-WeBS)*

The Irish Wetland Bird Survey (I-WeBS) was initiated in the Republic of Ireland in the winter of 1994/95. The survey is coordinated by the I-WeBS office based at BirdWatch Ireland, under contract to the NPWS. The primary objective of I-WeBS is to monitor the numbers and distribution of waterbird populations wintering in the Republic of Ireland, and the survey focuses on wintering waterbirds, as opposed to autumn and spring migrants.

The Proposed Development site is located in proximity to Cork Harbour SPA. A review of I-WeBS data shows that the Proposed Development site is located in proximity to a number of I-WeBS survey subsites i.e., Dunkettle, Glounthane Estuary/Slatty Waters, East Lough Mahon and Carrigrennan). I-WeBS data for these sites from 2016-2021 is included in **Appendix 2**. The locations of these I-WeBS subsites in proximity to the Proposed Development site are shown in **Figure 8**.



**Figure 8. I-WeBS survey subsites in proximity to the Proposed Development site**

These results show that nationally important number of wintering Black-tailed Godwit use Dunkettle as well as large numbers of Oystercatcher *Haematopus ostralegus*, Curlew *Numenius arquata*, Redshank *Tringa totanus*, Dunlin, Black-headed Gull *Chroicocephalus ridibundus* and Lesser Black-backed Gull *Larus fuscus*. Nationally important numbers of wintering Shelduck *Tadorna tadorna*, Wigeon *Mareca penelope*, Teal *Anas crecca*, Little Egret, Little Grebe *Tachybaptus ruficollis*, Golden Plover, Lapwing *Vanellus vanellus*, Dunlin, Black-tailed Godwit, Curlew, Redshank as well as large numbers of Oystercatcher and Black-headed Gull use Glounthane/Slatty waters. In Carrigrennan and Lough Mahon, Oystercatcher, Dunlin, Black-headed Gull and Cormorant *Phalacrocorax carbo* occur in the largest numbers.

While the intertidal and coastal habitats within the SPA boundary provide core foraging/roosting habitats for SCI birds, some SCI will forage or roost inland on agricultural fields outside the SPA boundary. According to Gittings (2017), nine SCI species regularly feed on agricultural fields in significant numbers around Cork Harbour: Wigeon, Golden Plover, Lapwing, Oystercatcher, Curlew, Black-tailed Godwit, Black-headed Gull, Common Gull and Lesser Black-backed Gull. There are another six species that can use fields, but these species do not usually occur in significant numbers i.e., Shelduck, Teal, Grey Heron, Little Grebe, Dunlin and Redshank. There are a number of fields within Little Island which have been used historically as foraging and roosting areas for wading birds and waterfowl (Gittings 2017). The closest of these, known as Little Island West Fields (LIEF **Figure 8**), is located approximately 830m east of the Proposed Development site. This area includes two low-lying fields on the northern side of Little Island, adjacent to the western end of the Glounthane Estuary. These fields were previously intensively managed as improved grassland, but recent aerial photography indicates some scrub encroachment has occurred over the last number of years in the absence of continued management. These fields have not been routinely counted since

the winter of 2005/06, due to the growth of vegetation along the N25 (which have obscured the fields from the vantage points previously used).

As noted above the habitats within the Proposed Development site are largely woodland, treeline and manmade habitats. There are no large areas of grassland within the site boundary which would provide suitable roosting or foraging areas of wading birds and waterfowl. While small numbers of waders and gulls could potentially occasionally forage on the small area of amenity grassland to the north of the railway line, this is a highly disturbed area which will not provide critical habitats for these species.

### **Vantage Point Surveys**

Given the proximity of the Proposed Development site to known foraging and roosting areas, the Proposed Development site and bridge could potentially be located within a commuting route for wading birds and waterfowl. Therefore, vantage point surveys were carried out to identify if the location of the proposed bridge creates a potential collision risk for flocks of wading birds and waterfowl. The results of the vantage point surveys, which were carried out in winter 2022 and 2023, are included in **Appendix 3**.

Generally, small numbers of birds and small flocks of birds (approximately 1-3 individuals) were recorded overflying the Proposed Development site. No wading bird species were recorded, and no large flocks of birds were recorded during any of the surveys. Passerine species such as Hooded Crow *Corvus cornix*, Jackdaw *Corvus monedula* and Rook were the most commonly recorded species. Small numbers of gulls were recorded i.e., Black-headed Gull usually as individuals or pairs of birds. Herring Gull *Larus argentatus* were also recorded in small numbers. Other species recorded included Buzzard *Buteo buteo*, Starling and Woodpigeon. Birds were generally recorded flying at a height of below 50m. Vantage points were carried out from the existing N25 bridge, and it is noted that no birds were recorded flying under the bridge.

### **7.3 Invasive Species**

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and (3) have an adverse effect on landscape quality. The NBDC lists a number of both aquatic and terrestrial high impact invasive species which have been recorded within grid square W77, the 10km OS grid square which overlaps with the Proposed Development site (see **Table 10**).

**Table 10. High impact invasive species recorded in W77**

Common Name	Latin Name
Canada Goose	<i>Branta canadensis</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Common Cord-grass	<i>Spartina anglica</i>
	<i>Fallopia japonica x sachalinensis = F. x bohemica</i>
Giant Hogweed	<i>Heracleum mantegazzianum</i>
Giant Knotweed	<i>Fallopia sachalinensis</i>
Giant-rhubarb	<i>Gunnera tinctoria</i>
Indian Balsam	<i>Impatiens glandulifera</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Parrot's-feather	<i>Myriophyllum aquaticum</i>
	<i>Rhododendron ponticum</i>
Harlequin Ladybird	<i>Harmonia axyridis</i>
American Mink	<i>Mustela vison</i>
Brown Rat	<i>Rattus norvegicus</i>
Fallow Deer	<i>Dama dama</i>
Feral Ferret	<i>Mustela furo</i>
House Mouse	<i>Mus musculus</i>
Sika Deer	<i>Cervus nippon</i>

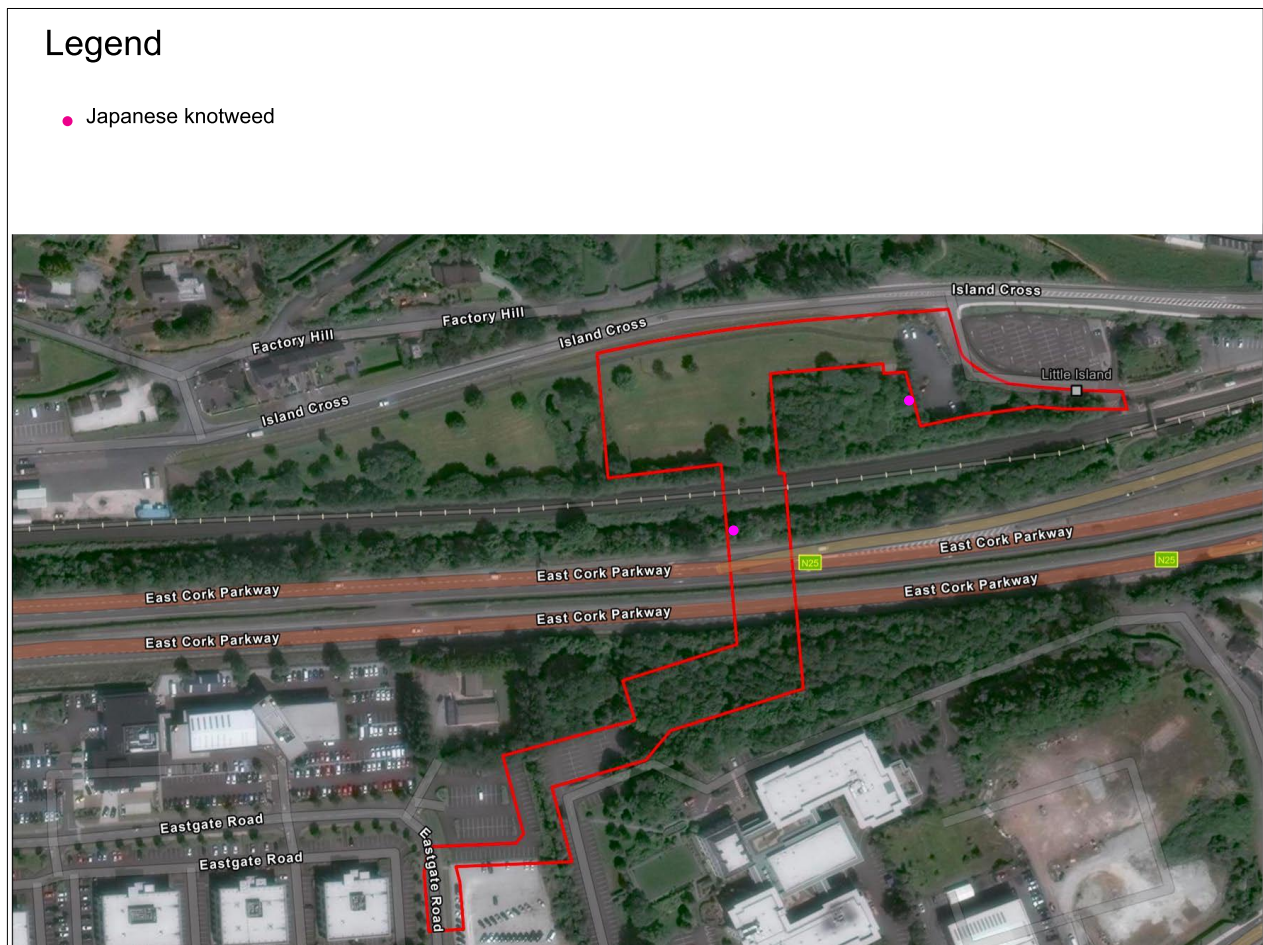
Source NBDC database 09/03/23

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000, where it states that:

*‘Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, [‘refers only to exotic species thereof’][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.’*

The Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) prohibits the introduction and dispersal of species listed in the Third Schedule, which includes Japanese Knotweed, as follows: *“any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [...] shall be guilty of an offence.”*

The third schedule high-risk invasive species Japanese Knotweed was recorded along the northern side of the N25 and the edge of woodland habitat on the north of the railway line (see Figure 9).



**Figure 9. Location of Japanese Knotweed within the study area**

Three other invasive species were recorded within the study area. The medium impact species, Buddleia (*Buddleia davidii*) and Wild Clematis (*Clematis virginiana*) were recorded within broadleaved woodland. The low impact species Winter Heliotrope (*Arctostaphylos Luciana*) has as scattered distribution throughout the study area. It is noted that these species are not included in the Third Schedule of the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011). Therefore, their presence at the site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (S.I. 477 of 2011).

## 8. Potential Impacts

Based on the *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018 and CIEEM guidelines '*Guidelines for Ecological Impact Assessment*' (CIEEM, 2019) impacts are listed as significant using a combination of professional judgement and criteria or standards where available, if impacts have the potential to have a significant impact on the ecological integrity on the habitats and species for which the site is designated.

The potential impacts associated with the proposed development are discussed in the following section with respect to their likelihood to have significant impacts on European sites.

As part of the assessment direct, indirect and in-combination impacts were considered. Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development. Indirect and secondary impacts do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect impacts of the project/plan - in combination with other plans and projects have been established.

Potential impacts were identified as follows:

- Potential impacts from loss of habitat
- Potential impacts from noise and disturbance
- Potential impacts on water quality during construction
- Potential impacts on water quality during operation
- Potential impacts from collision during operation
- Potential impacts from the spread of invasive species
- In-combination impacts

### **8.1 Potential impacts from loss of habitat**

The proposed development site is located approximately 800m east of Cork Harbour SPA and 913m west of Great Island Channel SAC at its closest point. An ecological appraisal of the proposed development site indicates that it supports common habitats which are not of high value in the context of the Natura 2000 designation. The habitats recorded within the proposed development boundary do not correspond to habitats listed on Annex I of the Habitats Directive. There is nothing to differentiate the amenity grassland habitats onsite from other similar habitats in the vicinity and they do not represent critical foraging or roosting habitat for the SCI birds of Cork Harbour SPA. No signs of SCI birds were recorded here, or in the area surrounding the proposed development site during the site visits.

The proposed development will not result in any significant deterioration in habitat quality or loss of habitat within the Cork Harbour SPA or Great Island Channel SAC. Therefore, it is concluded that the proposed development will not result in any loss or deterioration of habitat within Natura 2000 sites.

### **8.2 Potential impacts from noise and disturbance**

Potentially increased noise and disturbance associated with the site works could cause disturbance/displacement of fauna. The potential effects and impacts of disturbance have been widely recognised in wildlife conservation legislation, as has the need to develop conservation measures for birds whilst taking human activities into account. Article 4.4 of the Bird's Directive (79/409/EEC) requires member states to "*take appropriate steps to avoid... any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article*". This specifically relates to conservation measures concerning Annex I species.

The wintering birds listed as qualifying interests for the Cork Harbour SPA are strongly associated with estuarine shoreline areas or wetlands - habitat types absent from the proposed development site. It is noted that the proposed development site is outside the SPA boundary and is located within and adjacent to existing urban developments, over a busy national route the N25. This area is subject to significant noise, disturbance and light pollution from the existing road network as well as retail and industrial development. During the construction stage, there may be short-term increases in disturbance, but it will not be significant in the context of existing noise levels along the N25 route and Little Island area. Cork Harbour SPA is visually screened from the site by existing buildings and trees.

No valuable habitat for SCI species was recorded within or adjacent to the proposed development site. Small areas of amenity grassland within the proposed development could potentially be used as *ex situ* foraging grounds for SCI waders such as Golden Plover and Curlew. However, given the small size and disturbed nature of these habitats, they do not provide valuable foraging or roosting habitats for SCI species. The construction and operational phase of the project will increase noise and disturbance at a local level, however given the existing noise environment and the lack of valuable habitat for SCI species on or near the proposed development site, no impact on birds listed as qualifying interests for the Cork Harbour SPA from noise and disturbance is predicted to occur.

### **8.3 Potential impacts on water quality during construction**

Potential impacts on aquatic habitats which can arise from surface water emissions during the construction phase of the proposed development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid. Dewatering may be required for the construction of some of the bridge and ramp piers/abutments. There is potential, therefore, for the generation of sediment laden water associated with the construction phase of the works. During the construction phase there are potential sources of pollution to the Cork Harbour SPA and Great Island Channel SAC resulting from runoff and erosion from site earthworks and temporary stockpiles. The presence of fuels, lubricants and other chemicals from construction activities also have the potential to temporarily affect the surface/ground water regimes and potentially impact on European sites downstream.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines (i.e., *Control of Water Pollution from Construction Sites 2001*, and *Control of Water Pollution from Linear Construction Projects 2006* for best practice measures for controlling water pollution). Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on European sites.

A review of historical mapping (first edition 6" mapping 1829 to 1834 and 25" mapping from 1863 to 1924) showed that the Kilcoolashil Stream is not mapped by OSI. It is considered probable that this drain was created as part of the railway construction and is not a naturally occurring watercourse. Notwithstanding its inclusion in the EPA database of watercourses (EPA Envision Mapping), the Kilcoolashil Stream has the primary characteristics of an artificial drainage ditch. This is a heavily modified watercourse which has been straightened and deepened, is of negligible value for fish and has very limited value for other aquatic fauna. The Kilcoolashil Stream is heavily culverted at numerous locations along its length, which prevents

significant connectivity between its upper reaches and Cork Harbour. Flows are extremely sluggish/ minimal during periods of dry weather. Due to the sluggish nature of the flows particularly in the summer season and the dense aquatic vegetation (as detailed in **Table 8**), any siltation reaching this watercourse will be settled out of solution prior to discharge to the harbour. Given the limited nature of works in the vicinity of the stream, the potential for siltation reaching Cork Harbour SPA (2.6km downstream) and Great Island Channel (7.2km downstream) is not significant.

It is also noted that any minimal amounts of silt that do reach the estuary will be of negligible significance in the context of a high silt environment within the estuary and the high levels of dilution provided. Therefore, although it is possible to identify a potential hydrological linkage to the estuary via the Kilcoolashil Stream, the risk of significant siltation having an impact either at a local level or within Cork Harbour itself are minimal. Likewise, any minor spills of hydrocarbons which could potentially occur during construction will be of negligible significance in the context of the dilution provided within the estuarine environment.

Given the nature of the Kilcoolashil Stream and the weak hydrological connection to surrounding waterbodies, the robust nature of QI habitats and the dilution available within Cork Harbour, no significant impact on the conservation objectives of Cork Harbour SPA and Great Island Channel SAC is predicted to occur due to surface water runoff during the construction phase.

#### **8.4 Potential impacts on water quality during operation**

The operational elements of the bridge have been designed to minimise impacts on the flooding characteristics of the existing watercourse. The bridge will be used by pedestrian and cycle traffic and there is no potential for any hydrocarbon contaminated runoff or excessive silt. Therefore, there will be no significant impact on water quality during the operational phase and no impact on the conservation objectives of Natura 2000 sites as a result of operational surface water runoff.

#### **8.5 Potential impacts from collision during operation**

Birds have been colliding with manmade structures ever since humans started building them, with the earliest documented instances of collision mortality in the late 1800's (Coues 1876, Merriam 1885). Bird mortality through collisions with static anthropogenic objects, particularly at night (Evans Ogden 2002, Erickson *et al.* 2005, Gauthreaux and Belser 2006, Gehring *et al.* 2009, Martin 2011) and vehicles (Finnis 1960, Pons 2000, Erickson *et al.* 2005, Jacobson 2005) is well-documented. Avian mortality with manmade structures is largely a result of collisions with communications towers, high tension lines, wind turbines and buildings (Arup 2002, Erickson *et al.* 2005).

Although a wealth of literature exists on the subject of bird-strike with structures, much of it derives from one-off studies of individual installations, carried out or commissioned by developers or other interested and concerned parties. Putting such bird-strike mortality in context is crucial to understanding its impact on bird populations. A number of factors, such as total population size, natural mortality levels, and other human related influences are needed to put the collision mortality rates in proper perspective. Despite widespread public attention and more than five decades of research, measures of anthropogenic sources of mortality for birds remain speculative.



Estimates of total collision mortality from communication towers for example in North America range from 0.94 to 50 million birds annually (Banks 1979; Drewitt and Langston 2006). Estimates of annual mortality from building collisions range from 100 million to 1 billion birds in the United States (Klem 1990, Dunn 1993) and from 16 to 42 million birds in Canada (Machtans *et al.* 2013). Loss *et al.* (2011) estimate that between 12 and 64 million birds are killed each year at U.S. power lines and 11.6 million birds killed by electrocution. Arnold and Zink (2011) developed a model using comparative data, including species-specific measures of mortality, relative abundance, and long-term population trends. They found that vulnerability to collision with buildings and towers varied over more than four orders of magnitude among species. Species that migrated long distances or at night, were much more likely to be killed by collisions than year-round residents or diurnal migrants. They found no correlation between relative collision mortality and long-term population trends for these same species. However, it is noted, where rare or protected species occur for example Annex I species, impacts could be significant.

Rates of bird collisions with manmade structures are influenced by many factors that interact across multiple spatial and temporal scales. At a local level, collision rates are influenced by features of a structure (e.g., size, height, and window/glass area) (Klem *et al.* 2009; Hager *et al.* 2013) and their immediate surroundings (e.g., nearby vegetation and greenspace) (Gelb and Delacretaz 2006; Geld and Delacretaz 2009; Bracey *et al.* 2016; Kummer *et al.* 2016; Schneider *et al.* 2018). Collision rates also vary with bird migratory movements and changes in weather as well as human-related factors that influence bird behaviour such as the use of ornamental vegetation and artificial light at night, which confuses and attracts nocturnally migrating birds, increasing collision risk (Klem *et al.* 2004; Parkins *et al.* 2016). The traits of birds themselves, including visual perceptual ability (Martin 2011, Håstad 2014) and life history (e.g., resident or migrant species) (Sabo *et al.* 2016; Cusa *et al.* 2015) may also affect rates of collision. For some species, the risk of mortality in relation to collision is greater for inexperienced immature birds. For such species, it also follows that mortality rates are likely to be higher during the post-breeding period, when there are increased numbers of young birds and juveniles may be dispersing or migrating through unfamiliar habitats (Rose and Baillie (1992)).

While there is anecdotal evidence that birds collide with bridges, there are limited published studies on the collision of birds with bridges and no published studies which calculate the rate or bird collision with bridges. For the most part, research on collision risk to birds has focused on the manmade structures where a significant risk has been identified either to human or bird welfare e.g., wind turbines, buildings with large areas of glass, powerlines, aircraft, communication towers. There remains a dearth of research and/or data on collision rates with bridges in spite of a significant number of studies on bird collision with a large range of structures particularly in the last number of years with the advent of self-published literature e.g. PlusOne.

Bridges by their nature are often located in areas where high numbers of birds congregate around rivers and/or estuaries. However, information regarding mortality as a result of direct collisions with bridges is sparse. During a review of over 1,500 abstracts or summaries of published reports on bird mortality in relation to man-made structures (from Stanton and Kilcik 2018) there were no publications documenting bird collisions with, or bird mortality due to, collisions with bridges or bridge cables (Arup 2002, Parsons Brinckerhoff 2011). Bird deaths associated with bridges are usually a result of the powerlines strung across bridges (Weston

1966, Podolsky 1998, Arup 2002, Parsons Brinckerhoff 2011) or during periods of inclement weather when birds are affected by the bridge lighting (Nilsson and Green 2011) or after individuals are downed during strong winds (Owens and James 1991, Jacobson 2005).

The proposed development site is located in proximity to Cork Harbour and there are known foraging/roosting areas for wintering birds to the east, west and south of the site. However, winter vantage point survey carried out in 2022 and 2023 found no evidence that the proposed development site is located within a commuting or flightline for these species. Small numbers of gulls were recorded overflying the site as well as common passerine species such as crows. It is noted that there are two existing bridges located in proximity to the proposed bridge i.e. 100m east and 500m west. There is no evidence to suggest that birds are colliding with the existing bridge structures. Lighting on the proposed bridge will be downlit and will not significantly increase lighting in the area and/or potentially attract birds overflying the site at night.

Given the proposed location of the bridge within a built up area adjacent to existing bridges, the absence of bird commuting routes in this area and the unlikely nature of bridge collision, the proposed bridge does not pose a significant bird collision risk and there is no potential for significant impacts on the conservation objectives of Cork Harbour SPA from collision with the proposed bridge structure.

## **8.6 Potential impacts from the spread of Invasive species**

Japanese Knotweed has been recorded in a number of locations in the vicinity of the works area. Japanese Knotweed causes a range of problems due to prolific and dense growth habit including blocking sightlines on roads, damage to paving and structures, erosion of riverbanks and flood defence structures, damage to archaeological sites, loss and displacement of native habitats and species. Japanese Knotweed rhizomes are buoyant and can be dispersed by rivers (Rouified *et al.* 2011) or tides (Bailey 1994). Where these fragments wash downstream, there is potential for establishment of the plant species along the upper fringes of salt marsh habitats. The formation of virtually monospecific stands is a well-known effect of invasive species that can cause a reduction in biodiversity in impacted habitats (Van der Wal et al., 2008; Hejda et al., 2009). Degradation of wetland habitats within the SAC/SPA caused by this invasive species could potentially adversely impact supporting habitat for SCI species.

As detailed in **Section 7.1**, the Kilcoolashil Stream is more characteristic of a drainage ditch than a stream. This stream is heavily culverted in the vicinity of the proposed development site and site surveys found that the flows within the stream are sluggish and slow and the channel is heavily overgrown. This stream is largely dry during the summer months when rainfall is lower. In the absence of mitigation, Japanese Knotweed rhizomes could potentially enter the stream/connected drainage ditches from the construction works areas. However, given the sluggish flows and low flows within the stream (and drainage ditches), there is no pathway for this invasive species to flow over 2.6km downstream to reach Cork Harbour SPA (or Great Island SAC located 7.2km downstream). While there could be localised impacts on nearby habitats, there is no pathway for significant impact via the spread of invasive species to Cork Harbour SPA and Great Island Channel SAC in the absence of mitigation.

Given the above, no pathway for impact from medium or low impact invasive species i.e., Buddleia, Wild Clematis and Winter Heliotrope have been identified.

Therefore, no significant impact on the conservation objectives of the Cork Harbour SPA and Great Island Channel SAC from the spread of invasive species is predicted to occur.

### 8.7 In-combination Impacts

In-combination (cumulative) impacts refer to a series of individual impacts that may, in combination, produce a significant effect. The underlying intention of this in-combination provision is to take account of in-combination impacts from existing or proposed plans and projects and these will often only occur over time. It is proposed that a temporary off-site contractors carpark offsite will be utilised during the construction period. This site is not included in this application; however, it has been included for the purposes of cumulative assessment.

The main threats to the conservation objectives of the Great Island Channel SAC qualifying habitats are climate change, intensive cattle grazing, intensive sheep grazing, paths, tracks, cycling tracks, disposal of household / recreational facility waste, disposal of industrial waste reclamation of land, polderisation, modification of hydrographic functioning, erosion and invasive non-native species. In the absence of any significant potential impacts on the qualifying interests for Great Island Channel SAC no potential in-combination impacts from the proposed development have been identified.

As Cork Harbour SPA is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. The Natura 2000 Standard Data Form for Cork Harbour SPA notes that there are no serious imminent threats to the wintering birds even though the intertidal areas receive polluted water. Oil pollution from shipping in Cork Harbour is a general threat. Aquaculture occurs though it is not known if this has significant impacts on the birds. Recreational activities are high in some areas, including jet skiing which causes disturbance to roosting birds. Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat.

An assessment of plans and projects with the potential for in-combination effects in association with the proposed development was undertaken. A search of planning applications in the vicinity of the proposed development was undertaken in June 2023 to examine projects with potential for in-combination effects (Source: Cork County Council, Cork City Council, An Bord Pleanála, EPA). Other projects or developments which could potentially cause in-combination impacts are listed in **Table 11**.

**Table 11. Other projects or developments which could lead to potential in-combination impacts**

Plans and Projects European Network		Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	
River Basin Management Plan 2022-2027	<p>The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027.</p> <ul style="list-style-type: none"> <li>• Ensure full compliance with relevant EU legislation</li> <li>• Prevent deterioration</li> <li>• Meeting the objectives for designated protected areas</li> <li>• Protect high status waters</li> </ul> <p>Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and addressing more complex issues which will build knowledge for the third cycle.</p>	<p>The implementation and compliance with key environmental policies, issues and objectives of this management plan will result in positive in-combination effects to European sites. The implementation of this plan will have a positive impact for the biodiversity. It will not contribute to in-combination impacts with the proposed development.</p>	
Inland Fisheries Ireland Corporate Plan 2021-2025	<p>To ensure that Ireland’s fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and those pristine aquatic habitats are also enjoyed for other recreational uses.</p> <p>To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected.</p> <p>To grow the number of anglers and ensure the needs of IFI’s other key stakeholders are being met in a sustainable conservation focused manner.</p> <p>EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning Salmon and trout.</p>	<p>The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive on-combination effects to European sites. The implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and ecosystems. It will not contribute to in-combination or cumulative impacts with the proposed development.</p>	
Irish Water Capital Investment Plan 2020-2024	<p>Proposals to upgrade and secure water services and water treatment services countrywide.</p>	<p>Likely net positive impact due to water conservation and more effective treatment of water. It will not contribute to in-combination impacts with the proposed development.</p>	

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
<p>Water Services Strategic Plan (WSSP, 2015)</p>	<p>Irish Water has prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and biodiversity requirements through reducing:</p> <p>Habitat loss and disturbance from new / upgraded infrastructure;</p> <p>Species disturbance;</p> <p>Changes to water quality or quantity; and</p> <p>Nutrient enrichment /eutrophication.</p>	<p>The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP sets out the challenges we face as a country in relation to the provision of water services and identifies strategic national priorities. It includes Irish Water's short, medium and long-term objectives and identifies strategies to achieve these objectives. As such, the plan provides the context for subsequent detailed implementation plans (Tier 2) which will document the approach to be used for key water service areas such as water resource management, wastewater compliance and sludge management. The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of upgrades and new builds within the Irish Water owned assets.</p> <p>The overarching strategy was subject to AA and highlighted the need for additional plan/project environmental assessments to be carried out at the tier 2 and tier 3 level. Therefore, significant in-combination effects can be ruled out.</p>
<p><b>Other developments in the vicinity</b></p>	<p>Cork County Council and An Bord Pleanála databases were consulted to identify any proposed or permitted developments in proximity to the proposed developments site (June 2023).</p>	
	<p>224837 Approved - Conditional</p> <p>Decision received 08/06/2022 30 no. bedroom, three-storey extension to the existing Radisson Blu Hotel &amp; Spa, Little Island.</p> <p>iNua Hospitality General Partner Limited t/a Radisson Blu Hotel Cork applied for the construction of 30-bedroom, three storey</p>	<p>In a worst-case scenario, where construction works of these projects were to run concurrently there may be localised cumulative impacts on fauna. However, given the distance from the SPA boundary and the existing noise environment, no significant in-combination noise/disturbance impacts have been identified.</p>

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
	<p>extension to the existing hotel. The proposed development makes provision for internal alterations to the existing hotel to accommodate the proposed extension, including the omission of 2 existing hotel rooms at upper floors, omission of meeting room at ground floor level, and all ancillary works including rooftop plant. The proposed development consists of works within the curtilage of a Protected Structure</p>	<p>In the absence of mitigation, there may be minor localised impacts on water quality. However, given the weak hydrological connection to Great Island Channel SAC and Cork Harbour SPA, no significant in-combination impacts on water quality have been identified.</p> <p>No in-combination impacts from the spread of invasive species, operational surface water runoff or habitat loss have been identified.</p>
	<p>225935. Construction of light industrial building, Euro Business Park, Little Island.</p> <p>Approved - Conditional Decision received 05/04/2023</p> <p>South of Ireland Sustainable Energy Federation applied for permission to construct a light industrial building divided into 4 separate units to provide an integrated supply for, Solar Voltaic Panels, Energy Management Systems, Domestic Battery and Heat Pump installations, with additional parking and associated site works</p>	<p>In a worst-case scenario, where construction works of this project was to run concurrently with the proposed development, there may be localised cumulative impacts on fauna. However, given the distance from the SPA boundary and the existing noise environment, no significant in-combination noise/disturbance impacts have been identified.</p> <p>In the absence of mitigation, there may be minor localised impacts on water quality. However, given the weak hydrological connection to Great Island Channel SAC and Cork Harbour SPA, no significant in-combination impacts on water quality have been identified.</p> <p>No in-combination impacts from the spread of invasive species, operational surface water runoff or habitat loss have been identified.</p>

In the absence of any significant potential impacts on the on the qualifying interests and conservation interests for the Great Island Channel SAC and Cork Harbour SPA and in the absence of significant impacts on the conservation objectives of these Natura 2000 sites, no potential in-combination impact from the proposed development has been identified.

## 9. Screening conclusion and statement

This AA screening report has been prepared to assess whether the proposed works, individually or in-combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European Commission guidance, national guidance, and case law. The potential impacts of the proposed works have been considered in the context of the European sites potentially affected, their qualifying interests or special conservation interests, and their conservation objectives.

Through an assessment of the source-pathway-receptor model, which considered the Zol effects from the proposed works and the potential in-combination effects with other plans or projects, the following findings were reported:

The proposed N25 Pedestrian and Cycle Bridge, Little Island, Cork to either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives.

Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

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**Appendix I**  
**Site Synopses**

# Appendices

## Appendix 1 Site synopses

### Cork Harbour Special Protection Area (Site Code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poul nabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Laxflowered Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

### **Great Island Channel Special Area of Conservation (Site Code 001058)**

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

[1140] Tidal Mudflats and Sandflats

[1330] Atlantic Salt Meadows

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly. The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*). The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance. The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive. While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments. The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.

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**Appendix II**  
**I-WeBS Data**

## Appendix 2 Dunkettle I-WeBS Data 2016/2021

SubsiteCode	SubsiteName	SSGrid	Species Name	Latin Name	Display order	All Ireland_1pc	Flyway_1pc	Peak	2016/17	2017/18	2018/19	2019/20	2020/21
0L486	Dunkettle	W727723	Mute Swan	<i>Cygnus olor</i>	100	90	100	2				2	
0L486	Dunkettle	W727723	Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	900	350	400	2		2			
0L486	Dunkettle	W727723	Shelduck	<i>Tadorna tadorna</i>	1000	100	2500	4	2	2	2	4	
0L486	Dunkettle	W727723	Wigeon	<i>Mareca penelope</i>	1100	560	14000	27	27	3	18	6	
0L486	Dunkettle	W727723	Teal	<i>Anas crecca</i>	1300	360	5000	4	4	3			
0L486	Dunkettle	W727723	Mallard	<i>Anas platyrhynchos</i>	1400	280	53000	4	4	1	3	2	
0L486	Dunkettle	W727723	Red-breasted Merganser	<i>Mergus serrator</i>	2500	25	860	15	3	15	11	7	
0L486	Dunkettle	W727723	Great Northern Diver	<i>Gavia immer</i>	3000	20	50	0				0	



SubsiteCode	SubsiteName	SSGrid	Species Name	Latin Name	Display order	All Ireland_Ipc	Flyway_Ipc	Peak	2016/17	2017/18	2018/19	2019/20	2020/21
0L486	Dunkettle	W727723	Little Grebe	<i>Tachybaptus ruficollis</i>	3100	20	4700	4	4	3	2	1	
0L486	Dunkettle	W727723	Cormorant	<i>Phalacrocorax carbo</i>	3400	110	1200	19	15	17	14	19	
0L486	Dunkettle	W727723	Little Egret	<i>Egretta garzetta</i>	3600	20	1100	9	7	9	8	7	
0L486	Dunkettle	W727723	Grey Heron	<i>Ardea cinerea</i>	3700	25	5000	14	14	2	14	10	
0L486	Dunkettle	W727723	Oystercatcher	<i>Haematopus ostralegus</i>	4100	610	8200	153	153	28	144	60	
0L486	Dunkettle	W727723	Lapwing	<i>Vanellus vanellus</i>	4500	850	72300	50	49	50	16	30	
0L486	Dunkettle	W727723	Dunlin	<i>Calidris alpina</i>	5100	460	13300	450	60	450	340	420	
0L486	Dunkettle	W727723	Snipe	<i>Gallinago gallinago</i>	5400			4	3		4	3	
0L486	Dunkettle	W727723	Black-tailed Godwit	<i>Limosa limosa</i>	5600	200	1100	521		177	179	304	
0L486	Dunkettle	W727723	Bar-tailed Godwit	<i>Limosa lapponica</i>	5700	170	1500	33	33	20	2	12	

SubsiteCode	SubsiteName	SSGrid	Species Name	Latin Name	Display order	All Ireland_Ipc	Flyway_Ipc	Peak	2016/17	2017/18	2018/19	2019/20	2020/21
0L486	Dunkettle	W727723	Curlew	<i>Numenius arquata</i>	5900	350	7600	209	61	80	209	153	
0L486	Dunkettle	W727723	Redshank	<i>Tringa totanus</i>	6100	240	2400	134	91	95	134	77	
0L486	Dunkettle	W727723	Greenshank	<i>Tringa nebularia</i>	6200	20	3300	14	14	7	8	8	
0L486	Dunkettle	W727723	Common Sandpiper	<i>Actitis hypoleucos</i>	6500			1				1	
0L486	Dunkettle	W727723	Turnstone	<i>Arenaria interpres</i>	6600	95	1400	5	2	5		2	
0L486	Dunkettle	W727723	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	6800			460	245	460	309	291	
0L486	Dunkettle	W727723	Common Gull	<i>Larus canus</i>	6900			7	2	2	7		
0L486	Dunkettle	W727723	Lesser Black-backed Gull	<i>Larus fuscus</i>	7000			173	70	150	173	59	
0L486	Dunkettle	W727723	Herring Gull	<i>Larus argentatus</i>	7100			40	20	13	40	18	

SubsiteCode	SubsiteName	SSGrid	Species Name	Latin Name	Display order	All Ireland_1pc	Flyway_1pc	Peak	2016/17	2017/18	2018/19	2019/20	2020/21
0L486	Dunkettle	W727723	Great Black-backed Gull	<i>Larus marinus</i>	7200			39	6	39	37	22	
0L486	Dunkettle	W727723	Mediterranean Gull	<i>Ichthyaetus melanocephalus</i>	7300			1				1	
0L486	Dunkettle	W727723	Yellow-legged Gull	<i>Larus michahellis</i>	161600			1			1		

## Glounthane/Slatty Waters I-Webs Data 2016-2021

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinNameIOC	DisplayOrder	AllIreland_Ipc	Flyway_Ipc	Peak	2017/18	2018/19	2019/20	2020/21
0L489	Glounthane Estuary/Slatty Water	W800726	Mute Swan	Cygnus olor	100	90	100	6	4	6	4	2
0L489	Glounthane Estuary/Slatty Water	W800726	Canada Goose	Branta canadensis	700			5	5	4	5	
0L489	Glounthane Estuary/Slatty Water	W800726	Shelduck	Tadorna tadorna	1000	100	2500	275	199	275	187	115
0L489	Glounthane Estuary/Slatty Water	W800726	Wigeon	Mareca penelope	1100	560	14000	965	965	591	450	490
0L489	Glounthane Estuary/Slatty Water	W800726	Teal	Anas crecca	1300	360	5000	516	516	437	300	368
0L489	Glounthane Estuary/Slatty Water	W800726	Mallard	Anas platyrhynchos	1400	280	53000	83	48	16	83	35
0L489	Glounthane Estuary/Slatty Water	W800726	Pintail	Anas acuta	1500	20	600	3		3	2	
0L489	Glounthane Estuary/Slatty Water	W800726	Shoveler	Spatula clypeata	1600	20	650	1	1			
0L489	Glounthane Estuary/Slatty Water	W800726	Red-breasted Merganser	Mergus serrator	2500	25	860	12	6	8	12	3
0L489	Glounthane Estuary/Slatty Water	W800726	Great Northern Diver	Gavia immer	3000	20	50	0			0	

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinNameIOC	DisplayOrder	AllIreland_Ipc	Flyway_Ipc	Peak	2017/18	2018/19	2019/20	2020/21
0L489	Glounthane Estuary/ Slatty Water	W800726	Little Grebe	Tachybaptus ruficollis	3100	20	4700	36	25	24	36	
0L489	Glounthane Estuary/ Slatty Water	W800726	Great Crested Grebe	Podiceps cristatus	3200	30	6300	1	1	1		
0L489	Glounthane Estuary/ Slatty Water	W800726	Cormorant	Phalacrocorax carbo	3400	110	1200	41	41	15	26	
0L489	Glounthane Estuary/ Slatty Water	W800726	Little Egret	Egretta garzetta	3600	20	1100	57	57	42	40	48
0L489	Glounthane Estuary/ Slatty Water	W800726	Grey Heron	Ardea cinerea	3700	25	5000	20	13	15	20	20
0L489	Glounthane Estuary/ Slatty Water	W800726	Moorhen	Gallinula chloropus	3900			6	5	4	5	6
0L489	Glounthane Estuary/ Slatty Water	W800726	Oystercatcher	Haematopus ostralegus	4100	610	8200	470	258	470	272	276
0L489	Glounthane Estuary/ Slatty Water	W800726	Golden Plover	Pluvialis apricaria	4300	920	9300	2000	1		2000	36
0L489	Glounthane Estuary/ Slatty Water	W800726	Grey Plover	Pluvialis squatarola	4400	30	2000	1		1		
0L489	Glounthane Estuary/ Slatty Water	W800726	Lapwing	Vanellus vanellus	4500	850	72300	1131	1131	655	626	378

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinNameIOC	DisplayOrder	AllIreland_Ipc	Flyway_Ipc	Peak	2017/18	2018/19	2019/20	2020/21
0L489	Glounthane Estuary/ Slatty Water	W800726	Knot	Calidris canutus	4600	160	5300	150	41	20	150	
0L489	Glounthane Estuary/ Slatty Water	W800726	Dunlin	Calidris alpina	5100	460	13300	1298	613	1298	273	152
0L489	Glounthane Estuary/ Slatty Water	W800726	Snipe	Gallinago gallinago	5400			20	11	7	2	20
0L489	Glounthane Estuary/ Slatty Water	W800726	Black-tailed Godwit	Limosa limosa	5600	200	1100	2215	1985	1884	2215	1419
0L489	Glounthane Estuary/ Slatty Water	W800726	Bar-tailed Godwit	Limosa lapponica	5700	170	1500	3	1	2		3
0L489	Glounthane Estuary/ Slatty Water	W800726	Whimbrel	Numenius phaeopus	5800			2		2	1	
0L489	Glounthane Estuary/ Slatty Water	W800726	Curlew	Numenius arquata	5900	350	7600	354	342	354	280	125
0L489	Glounthane Estuary/ Slatty Water	W800726	Spotted Redshank	Tringa erythropus	6000			1	1			
0L489	Glounthane Estuary/ Slatty Water	W800726	Redshank	Tringa totanus	6100	240	2400	624	624	491	534	434
0L489	Glounthane Estuary/ Slatty Water	W800726	Greenshank	Tringa nebularia	6200	20	3300	17	15	15	17	8

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinNameIOC	DisplayOrder	AllIreland_Ipc	Flyway_Ipc	Peak	2017/18	2018/19	2019/20	2020/21
0L489	Glounthane Estuary/ Slatty Water	W800726	Turnstone	Arenaria interpres	6600	95	1400	9	9	5	9	4
0L489	Glounthane Estuary/ Slatty Water	W800726	Black-headed Gull	Chroicocephalus ridibundus	6800			2100	1340	1792	1132	2100
0L489	Glounthane Estuary/ Slatty Water	W800726	Common Gull	Larus canus	6900			13	13	4	11	7
0L489	Glounthane Estuary/ Slatty Water	W800726	Lesser Black-backed Gull	Larus fuscus	7000			76	76	18	25	23
0L489	Glounthane Estuary/ Slatty Water	W800726	Herring Gull	Larus argentatus	7100			8		5	5	8
0L489	Glounthane Estuary/ Slatty Water	W800726	Great Black-backed Gull	Larus marinus	7200			66	27	66	25	22
0L489	Glounthane Estuary/ Slatty Water	W800726	Mediterranean Gull	Ichthyactus melanocephalus	7300			2	2	1		
0L489	Glounthane Estuary/ Slatty Water	W800726	Cattle Egret	Bubulcus ibis	170550			3		3	2	
0L489	Glounthane Estuary/ Slatty Water	W800726	Great White Pelican	Pelecanus onocrotalus	171320			2		2		2

## I-WeBS Carrigrenan - Great Island & Railway 2016-2021

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinName eIOC	DisplayOrder	AllIreland_ 1pc	Flyway_1 pc	Peak	2017/18	2018/19	2019/20	2020/21
0L426	Carrigrenan - Great Island & Railway	W775705	Mute Swan	Cygnus olor	100	90	100	7		2	7	
0L426	Carrigrenan - Great Island & Railway	W775705	Shelduck	Tadorna tadorna	1000	100	2500	48	15	12	48	
0L426	Carrigrenan - Great Island & Railway	W775705	Wigeon	Mareca penelope	1100	560	14000	59	15	59	15	16
0L426	Carrigrenan - Great Island & Railway	W775705	Teal	Anas crecca	1300	360	5000	31	22	31	29	18
0L426	Carrigrenan - Great Island & Railway	W775705	Mallard	Anas platyrhynchos	1400	280	53000	48	2	48	16	
0L426	Carrigrenan - Great Island & Railway	W775705	Goldeneye	Bucephala clangula	2300	40	11400	2	2			
0L426	Carrigrenan - Great Island & Railway	W775705	Red-breasted Merganser	Mergus serrator	2500	25	860	26	26	15	8	5
0L426	Carrigrenan - Great Island & Railway	W775705	Little Grebe	Tachybaptus ruficollis	3100	20	4700	10	6	10	10	
0L426	Carrigrenan - Great Island & Railway	W775705	Great Crested Grebe	Podiceps cristatus	3200	30	6300	9	9	8	5	



SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinName eIOC	DisplayOrder	AllIreland_ 1pc	Flyway_1 pc	Peak	2017/18	2018/19	2019/20	2020/21
0L426	Carrigrenan - Great Island & Railway	W775705	Cormorant	Phalacrocorax carbo	3400	110	1200	64	64	32	47	
0L426	Carrigrenan - Great Island & Railway	W775705	Little Egret	Egretta garzetta	3600	20	1100	2		2	1	1
0L426	Carrigrenan - Great Island & Railway	W775705	Grey Heron	Ardea cinerea	3700	25	5000	4	2	3	4	2
0L426	Carrigrenan - Great Island & Railway	W775705	Oystercatcher	Haematopus ostralegus	4100	610	8200	465	465	185	80	53
0L426	Carrigrenan - Great Island & Railway	W775705	Ringed Plover	Charadrius hiaticula	4200	120	540	4				4
0L426	Carrigrenan - Great Island & Railway	W775705	Grey Plover	Pluvialis squatarola	4400	30	2000	8				8
0L426	Carrigrenan - Great Island & Railway	W775705	Lapwing	Vanellus vanellus	4500	850	72300	16	1	4	16	
0L426	Carrigrenan - Great Island & Railway	W775705	Knot	Calidris canutus	4600	160	5300	50	50			
0L426	Carrigrenan - Great Island & Railway	W775705	Dunlin	Calidris alpina	5100	460	13300	450		300	60	450
0L426	Carrigrenan - Great Island & Railway	W775705	Snipe	Gallinago gallinago	5400			4		1	4	4

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinName eIOC	DisplayOrder	AllIreland_ 1pc	Flyway_1 pc	Peak	2017/18	2018/19	2019/20	2020/21
0L426	Carrigrenan - Great Island & Railway	W775705	Black-tailed Godwit	Limosa limosa	5600	200	1100	100	100	35	2	42
0L426	Carrigrenan - Great Island & Railway	W775705	Bar-tailed Godwit	Limosa lapponica	5700	170	1500	7				7
0L426	Carrigrenan - Great Island & Railway	W775705	Curllew	Numenius arquata	5900	350	7600	84	42	84	37	64
0L426	Carrigrenan - Great Island & Railway	W775705	Redshank	Tringa totanus	6100	240	2400	97	47	70	97	17
0L426	Carrigrenan - Great Island & Railway	W775705	Greenshank	Tringa nebularia	6200	20	3300	8	1	4	8	
0L426	Carrigrenan - Great Island & Railway	W775705	Turnstone	Arenaria interpres	6600	95	1400	75	17	14	75	19
0L426	Carrigrenan - Great Island & Railway	W775705	Black-headed Gull	Chroicoce phalatus ridibundus	6800			250	250	226	154	162
0L426	Carrigrenan - Great Island & Railway	W775705	Common Gull	Larus canus	6900			15				15
0L426	Carrigrenan - Great Island & Railway	W775705	Lesser Black- backed Gull	Larus fuscus	7000			27	4	4	3	27
0L426	Carrigrenan - Great Island & Railway	W775705	Herring Gull	Larus argentatus	7100			192	2	21	15	192

SubsiteCode	SubsiteName	SSGrid	SpeciesName	LatinName eIOC	DisplayOrder	AllIreland_ 1pc	Flyway_1 pc	Peak	2017/18	2018/19	2019/20	2020/21
0L426	Carrigenan - Great Island & Railway	W775705	Great Black- backed Gull	Larus marinus	7200			51	21	42	5	51
0L426	Carrigenan - Great Island & Railway	W775705	Sandwich Tern	Thalasseus sandvicens is	7400			1		1		

## I-WeBS East Lough Mahon 2016-2021

SiteCode	Sitename	subsiteCode	Subsite	Taxonomy IOC	SpeciesName	1% National	1% International	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
0L403	Cork Harbour	0L452	East Lough Mahon	318	Mute Swan	90	100		7	9	6	2	
0L403	Cork Harbour	0L452	East Lough Mahon	435	Wigeon	560	14000		6	10	48	3	
0L403	Cork Harbour	0L452	East Lough Mahon	457	Mallard	280	53000	37	5	2	6	8	
0L403	Cork Harbour	0L452	East Lough Mahon	479	Teal	360	5000	28	25		9	22	
0L403	Cork Harbour	0L452	East Lough Mahon	518	Tufted Duck	270	8900				6		
0L403	Cork Harbour	0L452	East Lough Mahon	550	Goldeneye	40	11400	6			4	2	
0L403	Cork Harbour	0L452	East Lough Mahon	565	Red-breasted Merganser	25	860	2	30	2	23	16	
0L403	Cork Harbour	0L452	East Lough Mahon	5363	Little Grebe	20	4700			4		1	
0L403	Cork Harbour	0L452	East Lough Mahon	5411	Great Crested Grebe	30	6300	18	38	28	8	13	

SiteCode	Sitename	subsiteCode	Subsite	Taxonomy IOC	SpeciesName	1% National	1% International	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
0L403	Cork Harbour	0L452	East Lough Mahon	5562	Oystercatcher	610	8200	24	13	2	8	15	
0L403	Cork Harbour	0L452	East Lough Mahon	5792	Whimbrel				1				
0L403	Cork Harbour	0L452	East Lough Mahon	5806	Curllew	350	7600			1	1		
0L403	Cork Harbour	0L452	East Lough Mahon	5826	Turnstone	95	1400	40	19		21	15	
0L403	Cork Harbour	0L452	East Lough Mahon	5859	Dunlin	460	13300		1				
0L403	Cork Harbour	0L452	East Lough Mahon	5927	Snipe				3				
0L403	Cork Harbour	0L452	East Lough Mahon	5963	Redshank	240	2400	8	6	6	8	2	
0L403	Cork Harbour	0L452	East Lough Mahon	5973	Greenshank	20	3300	6			1		
0L403	Cork Harbour	0L452	East Lough Mahon	6089	Black-headed Gull			103	158	158	73	109	
0L403	Cork Harbour	0L452	East Lough Mahon	6122	Common Gull						4		

SiteCode	Sitename	subsiteCode	Subsite	Taxonomy IOC	SpeciesName	1% National	1% International	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
0L403	Cork Harbour	0L452	East Lough Mahon	6131	Great Black-backed Gull			10	1	2	1	2	
0L403	Cork Harbour	0L452	East Lough Mahon	6152	Herring Gull				1	3	13	8	
0L403	Cork Harbour	0L452	East Lough Mahon	6165	Lesser Black-backed Gull			2	2				
0L403	Cork Harbour	0L452	East Lough Mahon	6194	Sandwich Tern						1		
0L403	Cork Harbour	0L452	East Lough Mahon	6814	Cormorant	110	1200	27	110	31	20	17	
0L403	Cork Harbour	0L452	East Lough Mahon	7058	Grey Heron	25	5000	3			1		
0L403	Cork Harbour	0L452	East Lough Mahon	7111	Little Egret	20	1100	2					



## **Appendix III**

# N25 Birdcounts Summary

## Appendix 3 N25 Birdcounts Summary

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 28/02/22</b>	Hooded crow	1/100	25-50	s-n	flying
<b>Cloud: 100%</b>	Hooded crow	1/70	25-50	n-s	flying
<b>Temp: 9</b>	Hooded crow	1/80	50+	s-n	flying
<b>Rain: Light drizzle</b>	Hooded crow	1/70	50+	n-s	flying
	Buzzard	1	25-50	w-e	flying/perching
	Blackhead Gull	2/3	50+	e-w	flying
	Magpie	2/1	25-50	s-n	flying
	Blackhead Gull	2/4	50+	w-e	flying
	Duncock	1/1	25-50	e-w	flying
	Blue Tit	1/1	25-50	e-w	flying
	Meadow Pip	2/1	50+	e-w	flying
	Herring Gull	3/4	50+	e-w	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 29/02/22</b>	Hooded crow	1/70	25-50	s-n	flying
<b>Cloud: 0%</b>	Hooded crow	1/80	25-50	n-s	flying
<b>Temp: 11</b>	Hooded crow	1/100	50+	s-n	flying
<b>Rain: None</b>	Hooded crow	1/90	50+	n-s	flying
	Buzzard	1	25-50	s-n	flying
	Blackheaded Gull	10/2	50+	w-e	flying
	Blackheaded Gull	1/40	50+	w-e	flying
	Herring Gull	1/10	50+	e-w	flying



N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 15/03/22</b>	Hooded crow	3/70	50+	e-w	flying
<b>Cloud: 90%</b>	Goldfinch	1/10	50+	s-n	flying
<b>Temp: 11</b>	Buzzard	1	50+	s-n	flying
<b>Rain: None</b>	Blackheaded Gull	3/1	50+	n-s	flying
	Hooded crow	2/40	50+	s-n	flying
	Hooded crow	1/20	25	n-s	flying
	Buzzard	1	50+	s-n	flying
	Herring Gull	3/1	50+	n-s	flying
	Hooded Crow	10/10	50+	e-w	flying
	Hooded Crow	5/12	50+	n-s	flying
	Starling	20/1	50+	s-n	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 21/03/22</b>	Hooded crow	1/70	50+	e-w	flying
<b>Cloud: 100%</b>	Hooded crow	3/100	50+	w-e	flying
<b>Temp: 12</b>	Hooded crow	5/60	50+	e-w	flying
<b>Rain: None</b>	Jackdaw	4/30	25-50	e-w	flying
<b>Wind: High</b>	Jackdaw	5/40	50+	w-e	flying
	Rook	1/50	50+	e-w	flying
	Rook	3/60	50+	w-e	flying
	Wood pigeon	1/45	50+	e-w	flying
	Wood pigeon	3/30	100+	e-w	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 25/11/22</b>	Rook	1/20	15	e-w	flying
<b>Cloud: 100%</b>	Rook	1/30	15	n-s	flying
<b>Temp: 10</b>	Rook	3/20	10	e-w	flying
<b>Rain: 0%</b>	Rook	1/20	20	s-n	flying
<b>Wind: High</b>	Rook	1/30	50		flying
	Rook	4/10	20	s-n	flying
	Rook	4/15	50	n-s	flying
	Feral pigeon	2/20	15	e-w	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
<b>Date: 03/12/22</b>	Rook	2/30	20	e-w	flying
<b>Cloud: 0%</b>	Jackdaw	1/20	15	n-s	flying
<b>Temp: 8</b>	Rook	3/20	10	e-w	flying
<b>Rain: None</b>	Pigeon	2/15	10	w-e	flying
	Rook	1	2015	s-n	flying
	Starling	8/1	2015	s-n	flying
	Rook	4/10	50	n-s	flying
	Feral pigeon	2/10	15	e-w	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
28/12/22	Jackdaw	5/10	<25	e-w	flying
Cloud: 30%	Blackbird	1/3	<25	w-e	flying
Temp: 9	Starling	5/2	50+	w-e	flying
Rain: Light drizzle	Magpie	1/5	50+	w-e	flying
	Blackbird	1/3	50+	e-w	flying
	Wren	½	5+	w-e	flying
	Blackbird	½	<20	e-w	flying
	Starling	5/2	50+	e-w	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
28/1/23	Hooded crow	2/3	50+	e-w	flying
Cloud: 40%	Blackbird	1/2	<25	w-e	flying
Temp: 10	Hooded crow	1/6	<25	n-s	flying
Rain: None	Buzzard	1/2	50+	n-s	flying
	Herring Gull	1/3	20+	s-n	flying
	Hooded Crow	¼	50+	e-w	flying
	Jackdaw	3/10	50+	n-s	flying
	Starling	8/1	20+	s-n	flying

N25 Birdcounts	Species	Flock Size/Number	Height	Direction	Behaviour
29/1/23	Magpie	1/3	50+	w-e	flying
Cloud: 30%	Blackbird	1/10	50+	w-e	flying
Temp: 11	Wren	½	<25	w-e	flying
Rain: None	Blackbird	1/3	20+	n-s	flying
	Starling	3/2	50+	w-e	flying
	Buzzard	1/2	50+	s-n	flying
	Herring Gull	1/2	50+	n-s	flying
	Hooded Crow	1/15	20+	e-w	flying
	Hooded Crow	2/10	20+	s-n	flying
	Starling	2/2	50+	s-n	flying



**N25 Little Island Pedestrian and Cyclist Bridge**  
Environmental Impact Assessment Report