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Report in Support of Appropriate Assessment
Screening

Proposed Ballinrea Cross Roundabout,
Ballinrea,
Carrigaline,
Co. Cork

On Behalf of
Arup

June 2023

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Project	Report in Support of Appropriate Assessment Screening for Proposed Ballinrea Cross Roundabout, Ballinrea, Carrigaline, Co. Cork.	
Client	Arup	
Project Ref.	23054	
Report No.	23054.02	
Client Ref.	-	
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1. Introduction

1.1 Background

The information in this report has been compiled by DixonBrosnan on behalf of the applicant. It provides information on and assesses the potential for the proposed Ballinrea Cross Roundabout, Ballinrea, Carrigaline, Co. Cork, to impact on any European sites within its likely zone of impact. The information in this report forms part of and should be read in conjunction with other planning application documentation.

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 European 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 European 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 177AE 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 European 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 European 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), 2001);
- *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);*
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021) and*
- *CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála.*

1.3 Authors of Report

This report and survey work was completed by Carl Dixon MSc (Ecological Monitoring) and Dr. Sorcha Sheehy PhD (Ecology/ornithology).

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 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 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.

Sorcha Sheehy PhD (Ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds. Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport. During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

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 European 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 European 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 European 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 European 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 European site within its likely zone of impact.

3. Receiving Environment

3.1 Existing site

Ballinrea Cross Junction is located on the outskirts of Carrigaline, Co. Cork, approximately 2km northwest of Carrigaline town centre and 9km southeast of Cork City Centre (**Figure 1**). The junction is a connects the Ballinrea Road and the L2473. The Ballinrea Road is a local commuter route from Donnybrook in Cork City to Carrigaline. The L2473 is a loop road that provides local access around Carrigaline's north-western community.

The proposed development site is located in a rural setting and surrounded by agricultural grassland, one off housing development and farm buildings.

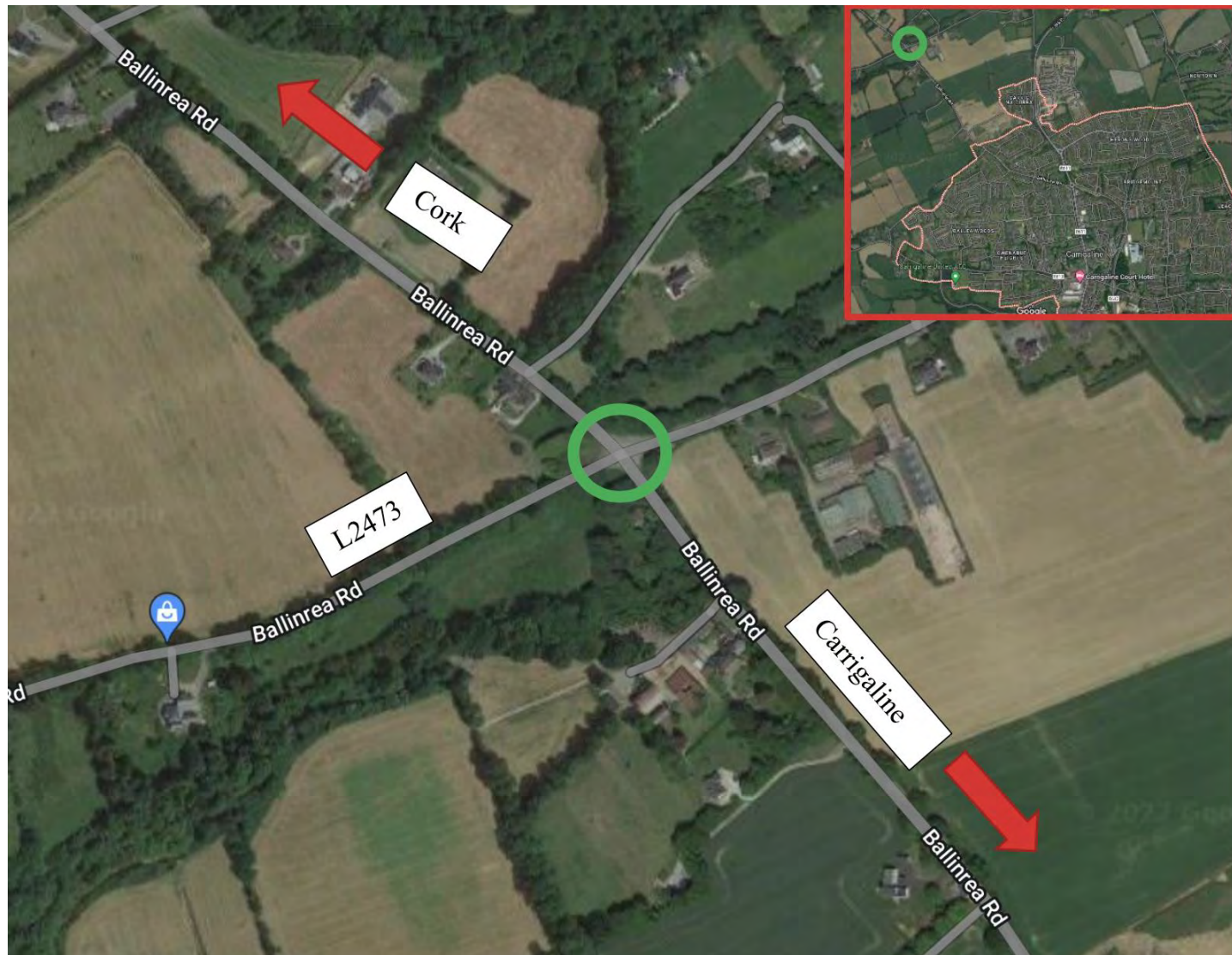


Figure 1. Site location | Source Arup

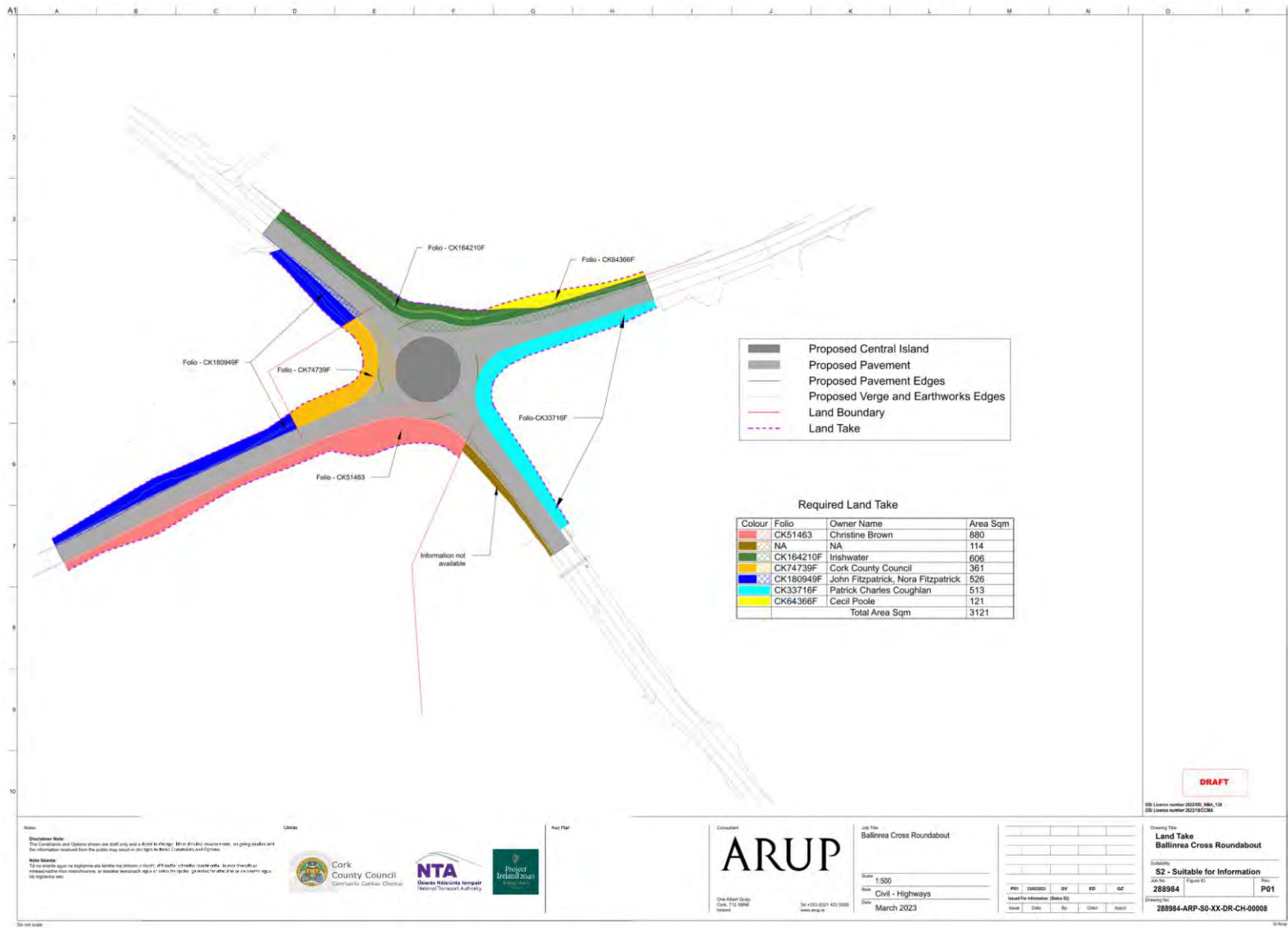


Figure 2. Overview of proposed development site | Source Arup

3.2 Proposed Development

The proposed scheme consists of the provision of a junction upgrade to a roundabout to address the poor visibility. The preferred option in the Ballinrea Cross Roundabout Design Options report (Report reference: 288984-ARUP-01-XX-RP-01) has been designed in accordance with the relevant standards. This report has been prepared in accordance with DN-GEO-03030 and approval is sought to proceed to Phase 4, Statutory Procedures.

The site layout is shown in **Figure 2**. Site drawings are included in **Appendix 2**.

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

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

4.2 Study Area and Scope of Appraisal

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

The likely zone of impact (Zoi) comprises the area within which the proposed development may potentially affect the conservation objectives (or qualifying interests) of a European site. There is no recommended likely zone of impact, and guidance from the National Parks and Wildlife Service (NPWS) recommends that the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative).

In ecological and environmental impact assessment, for an effect to occur there must be a risk enabled by having a source (e.g. construction works at a proposed development site), a 'receptor' (e.g. SAC or other ecologically sensitive feature), and a pathway between the source and the receptor (e.g. a watercourse which connects the proposed development site to the SAC, *ex situ* foraging habitat for SCI birds). A 'receptor' is defined as the Special Conservation Interest (SCI) of SPAs or Qualifying Interest (QI) of SACs for which conservation objectives have been set for the European sites being screened.

Consideration is therefore given to the source-pathway-receptor linkage and associated risks between the proposed development and European sites. For a significant effect to occur there needs to be an identified risk whereby a source (e.g. contaminant or pollutant arising from construction activities) affects a particular receptor (i.e. European site) through a particular pathway (e.g. a watercourse which connects the proposed development with the European site).

The identification of risk does not automatically mean that an effect will occur, nor that it will be significant. The identification of these risks means that there is a possibility of environmental or ecological damage occurring. The level and significance of the effect depends upon the nature of the consequence, likelihood of the risk and characteristics of the receptor.

The precautionary principle is applied for the purposes of screening to ensure that consideration and pre-emptive action is undertaken where there is a lack of scientific evidence. It is noted that mitigation measures are not taken into account in the AA screening assessment process.

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

4.3 Field Study

Site walkovers surveys were carried out on the 16th May 2023 and 25th May 2023 to identify the habitats, flora and fauna present at the site. 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 likely Zol 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 likely zone of impact for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the likely zone of impact of the proposed works;
- Identification of the most up-to-date QIs and SCIs for each European site within the likely zone of impact;
- 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 European sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Carrigaline 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
- Environmental Protection Agency (EPA) – www.epa.ie
- National Biodiversity Data Centre (NBDC)– www.biodiversityireland.ie
- *Cork County Biodiversity Action Plan 2009-2014* (Cork County Council 2009);
- *Cork County Development Plan 2022-2028* (Cork County Council 2022);
- Bat Conservation Ireland – <http://www.batconservationireland.org>
- Birdwatch Ireland - <http://www.birdwatchireland.ie/> and
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>.

5. European Sites

5.1 Designated sites within Likely Zone of Impact

In accordance with the European Commission Methodological Guidance (EC 2018), a list of European sites that can be potentially affected by the proposed development has been compiled.

All candidate SACs (cSAC) and SPAs sites within the likely zone of impact of the proposed development have been identified in **Table 1** and shown in **Figure 3** and **Figure 4**.

The proposed development site is located within the likely zone of impact of two European sites i.e., Cork Harbour SPA and Great Island Channel SAC (**Table 1**). The location of these European sites is shown in **Figure 3**. A small stream flows through the proposed development site. Although this is not included in the EPA mapping, based on the direction of flow and location, this is likely to be a tributary of the Owenacurra River. The lower reaches of the Owenacurra River/Estuary form part of the Cork Harbour SPA (c.5.1km downstream). Although unlikely given the distance downstream, potential impacts from surface water runoff during construction and operation could potentially impact on water quality within Cork Harbour SPA. Works could also potentially lead to the spread of invasive species into Cork Harbour SPA.

The habitats within the proposed development site boundary include the existing road network and boundary habitats (largely treelines). There is no potential *ex-situ* foraging habitat for SCI birds within the proposed development site. Given these are upgrades to an existing road network, no potential for disturbance or displacement of SCI birds have been identified.

Therefore, a source-pathway-receptor link has been identified between the source (proposed development) and the receptor (Cork Harbour SPA) via a potential pathway (surface water runoff and the spread of invasive species).

Although the Owenacurra River/Estuary is hydrologically connected to Great Island Channel SAC via Cork Harbour, given the distance from the proposed development site (19.1km downstream) and the dilution available within the estuarine waters of Cork Harbour, no viable pathway for impact on the Great Island Channel SAC has been identified. There are no hydrological or other connections between the proposed development and any other European site and therefore no viable pathway with any other European site has been identified.

Table 1. European sites and their location relative to the proposed development site

European sites	Site Code	Qualifying Interests/Special Conservation Interests	Distance at closest point and potential source-pathway-receptor link
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	Located 7.8km east (19.1km downstream) of the proposed development site. Given the distance from the proposed development site and the dilution available within Cork Harbour, no viable pathway for impact has been identified.
Special Protection Area (SPA)			
Cork Harbour SPA	004030	Little Grebe (<i>Tachybaptus ruficollis</i>) [A004] Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Grey Heron (<i>Ardea cinerea</i>) [A028] Shelduck (<i>Tadorna tadorna</i>) [A048] Wigeon (<i>Anas 16irsute16</i>) [A050] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Anas clypeata</i>) [A056] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142]	2.2km southeast (5.1km downstream). A small stream (probably a tributary of the Owenabue River) flows through the proposed development site. The lower reaches of the Owenacurra River/Estuary form part of the Cork Harbour SPA (c.5.1km downstream). Given the potential hydrological connection of the proposed development relative to this European site boundary a viable source pathway connector link has been identified.

European sites	Site Code	Qualifying Interests/Special Conservation Interests	Distance at closest point and potential source-pathway-receptor link
		Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa 17irsute</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Common Gull (<i>Larus canus</i>) [A182] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Common Tern (<i>Sterna hirundo</i>) [A193] Wetland and Waterbirds [A999]	



Figure 3. Location of the proposed development boundary and Natura 2000 sites located within zone of influence of the site | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | 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.

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*.

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. Cork Harbour has a nationally important breeding colony of Common Tern (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.

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

5.3 European 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 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 of European sites. 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 European 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 SCIs for Cork Harbour SPA and specific conservation objectives are included in **Table 2**.

Table 2. Special Conservation Interests (SCIs) for Cork Harbour SPA

Species code	Species		Conservation objective
A056	Shoveler	<i>Anas clypeata</i>	Maintain
A149	Dunlin	<i>Calidris alpina</i>	Maintain
A140	Golden Plover	<i>Pluvialis apricaria</i>	Maintain

Species code	Species		Conservation objective
A050	Wigeon	<i>Anas penelope</i>	Maintain
A028	Grey Heron	<i>Ardea cinerea</i>	Maintain
A069	Red-breasted merganser	<i>Mergus serrator</i>	Maintain
A142	Lapwing	<i>Vanellus vanellus</i>	Maintain
A130	Oystercatcher	<i>Haematopus ostralegus</i>	Maintain
A141	Grey plover	<i>Pluvialis squatarola</i>	Maintain
A052	Teal	<i>Anas crecca</i>	Maintain
A054	Pintail	<i>Anas acuta</i>	Maintain
A157	Bar-tailed Godwit	<i>Limosa lapponica</i>	Maintain
A162	Redshank	<i>Tringa totanus</i>	Maintain
A183	Lesser Black-backed gull	<i>Larus fuscus</i>	Maintain
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Maintain
A004	Little Grebe	<i>Tachybaptus ruficollis</i>	Maintain
A160	Curlew	<i>Numenius arquata</i>	Maintain
A182	Common Gull	<i>Larus canus</i>	Maintain
A048	Shelduck	<i>Tadorna tadorna</i>	Maintain
A017	Cormorant	<i>Phalacrocorax carbo</i>	Maintain
A193	Common Tern	<i>Sterna hirundo</i>	Maintain
A005	Great crested grebe	<i>Podiceps cristatus</i>	Maintain
A156	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
A999	Wetlands and waterbirds		Maintain

Restore = Restore favourable conservation condition, Maintain = Maintain 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.

5.4 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 2014b).

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (**Table 3**) 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 3. 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	Number	No significant decline

Species/Habitats	Attribute	Measure	Target
	occupied nests (AONs)		
	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

The Conservation Objectives Supporting document for Cork Harbour SPA (NPWS, 2014c) provides a review of the site conservation condition and population trends for Cork Harbour SPA with regard to species' all-Ireland and international trends. All-Ireland trends follow I-WeBS data 1994-2015 (Birdwatch Ireland 2022) while International trends follow Wetlands International (2012). The conservation status of Cork Harbour SPA's SCI birds are included in **Table 4**.

Table 4. Conservation Status of SCI species within Cork Harbour

Special Conservation Interests	BoCCI Category ¹	Site conservation condition ²	Current All-Ireland Trend ³	Current International Trend ⁴
Shelduck	Amber	Unfavourable	Declining	Increasing
Wigeon	Amber	Unfavourable	Declining	Stable
Teal	Amber	Intermediate (Unfavourable)	Stable	Increasing
Pintail	Amber	Highly unfavourable	Stable	Increasing

Special Conservation Interests	BoCCI Category ¹	Site conservation condition ²	Current All-Ireland Trend ³	Current International Trend ⁴
Shoveler	Red	Highly unfavourable	Stable	Increasing
Red-breasted Merganser	Amber	Highly unfavourable	Stable	n/c
Little Grebe	Green	Favourable	Increasing	Increasing
Great Crested Grebe	Amber	Unfavourable	Stable	Declining?
Cormorant	Amber	Highly unfavourable	Stable	Increasing
Grey Heron	Green	Intermediate	Stable	Increasing
Oystercatcher	Red	Intermediate (unfavourable)	Stable	Declining
Golden Plover	Red	Favourable	Declining	Declining
Grey Plover	Red	Highly unfavourable	Declining	Declining?
Lapwing	Red	Highly unfavourable	Declining	Stable
Dunlin	Red	Unfavourable	Declining	Stable
Black-tailed Godwit	Red	Favourable	Increasing	Increasing
Bar-tailed Godwit	Red	Favourable	Stable	Increasing
Curlew	Red	Unfavourable	Declining	Declining
Redshank	Red	Unfavourable	Stable	Stable/increasing
Black-headed Gull	Amber	Highly unfavourable	n/c	n/c
Common Gull	Amber	Highly unfavourable	n/c	n/c
Lesser Black-backed Gull	Amber	Highly unfavourable	n/c	n/c

1. Gilbert et al. 2021. 2. NPWS, 2014c, 3. Birdwatch Ireland I-WeBS 1994-2015, 4. Wetlands International (2012)

6. Water Quality data -River Basin Management Plan (3rd 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, which was published in July 2022, 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 watercourses within the study area is provided in **Table 5** and the location of these shown in **Figure 4**.

Table 5. WFD Status

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) – 2nd Cycle			
<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 2,153km². 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, Middleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km².</p> <p>Several small coastal rivers drain the area to the southeast of Cork Harbour and the area at the eastern extreme of the catchment is drained by the Womanagh River which flows into the sea on the western side of Youghal Bay.</p> <p>The Lee-Cork Harbour catchment comprises 18 sub-catchments with 92 river water bodies, three lakes, 13 transitional, six coastal water bodies and 16 groundwater bodies. There are five heavily modified and no artificial water bodies in the catchment.</p> <p>The proposed development site is located within the Owenabue [Cork]_SC_010 sub-catchment. Two out of seven river water bodies within this sub-catchment are AT RISK, Owenabue (Cork)_020 and Owenabue (Cork)_040 due to Poor biological status. Owneboy_010 is of Good ecological status but is under REVIEW due to elevated phosphate. Owenabue (Cork)_030, Hilltown_010 and Kilnaglery_010 is under REVIEW due to their unassigned status.</p> <p>Channelisation and agriculture are the likely significant pressure impacting the AT RISK water bodies. Further investigation is required so as to determine a) what is driving elevated nutrient conditions within Owenabue (Cork)_010 and Owenabue (Cork)_020 and; b) whether any issues exist within the unassigned water bodies.</p>			
Waterbodies relevant to the proposed project			
Waterbody	WFD Risk	WFD Status (2013-2018)	Pressure Category
Owenabue_Cork (040)	At risk	Moderate	Hydro morphology-Channelisation
Owenabue Estuary	At risk	Moderate	Agriculture
Cork Harbour	At risk	Moderate	Anthropogenic Pressures

Source: EPA envision mapping and www.catchments.ie

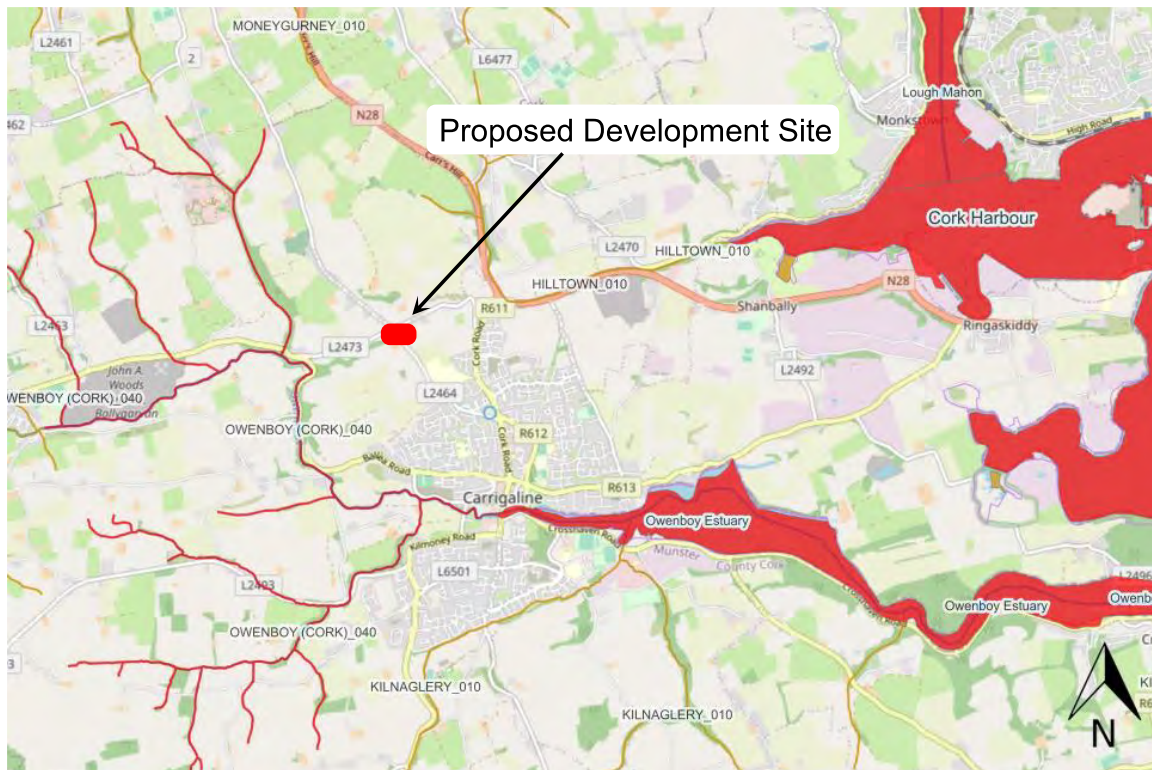


Figure 4. WFD waterbodies in the vicinity of the proposed development | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | not to scale

7. Site Surveys

7.1 Habitats

Site surveys were carried out on the 16th May 2023 and 25th May 2023. 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 study area 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 study area included all lands within the development site. A current overview of habitats recorded within the site is shown in **Figure 5** and the habitats recorded on site are described in **Table 6**. Site photographs are included below.



The habitats recorded during site surveys are not listed as qualifying habitat for European sites and do not correspond with Annex I habitats under the Habitats Directive.




Table 6. Habitat present and their relative value.

Habitat	Comments
<p>Dry meadows and grassy verge GS2</p>	<p>The works area includes a mosaic of grassy verge and treeline habitat. These areas are dominated by common grass and herbaceous species. A broad band of dry meadows and grassy verge habitat runs along the north-western and southwestern verges of the road. A range of common species including dock, ragweed, creeping buttercup, ribwort plantain, sow thistle, vetches, daisy, mayflower, hogweed, dandelion, herb Robert, cleavers, cocksfoot, bluebell, germander, speedwell, nettle, bindweed, meadowsweet and groundsel.</p> <p>A small area of three-cornered leek is also present along the southwestern verge of the proposed development site.</p>  <p>Plate 1. Dry meadows and grassy verge (southwestern verge looking south)</p>  <p>Plate 2. Immature sycamore on southwestern verge (looking north)</p>
<p>Treeline WL2</p>	<p>Continuous treeline borders much of the site. Many of the treelines include a large proportion of non-native species, including lime, cherry and leylandii. Notably one mature oak was recorded adjacent to the stream. Although none of these trees</p>

Habitat	Comments
	<p>are mature enough to provide significant roosting habitat for bats. Understorey species include Hawthorn, Elder and Cherry Laurel.</p> <p>The treelines within the site include the following species (Cross-reference with Figure 5)</p> <p>Treeline 1 Sycamore (mature) x 3 Sycamore (semi-mature) x 1 Sycamore (immature) x 1 Leylandii x 1 Cherry (immature) x 1 Semi-mature oak x 2 Poplar (immature) x 1 Willow (semi-mature x 2) Ash (semi-mature) x 1 Ash (immature) x 1</p> <p>Treeline 2 Cherry laurel x 1 Leylandii x 20 Ash (mature) x 1</p> <p>Treeline 3 Sycamore group (immature) Sycamore (mature) x 2 Sycamore (semi-mature) x 1 Hawthorne (mature) x 2 Ash (mature) x 2</p> <p>Treeline 4 Sycamore (mature) x 1 Ash (mature) x 3 Ash (semi-mature) x 1 Leylandii (mature) x 1</p> <p>Treeline 5 Leylandii (semi-mature) group Sycamore (mature) x 3 Sycamore (semi-mature) group Sycamore (semi-mature) x 3 Sycamore (immature) x 1 Ash (semi-mature) x 2 Hawthorn (mature) x 5</p> <p>Treeline 6 Ash (mature) x 3 Ash (semi-mature) x 5 Sycamore (mature) x 4 Sycamore (immature) x 1 Beech (immature) group Mature oak x 1</p> <p>The understory of the treelines is dominated by bramble and umbellifers such as alexander's, hogweed, hemlock water dropwort, cleavers, nettle and bramble.</p>

Habitat	Comments
	 <p data-bbox="549 904 1043 949">Plate 3. Treeline 1 (looking north-west)</p>  <p data-bbox="549 1330 1043 1375">Plate 4. Treeline 1 along south-eastern boundary</p>  <p data-bbox="549 1756 1412 1805">Plate 5. Treeline 2 along southwestern corner of junction (looking southwest)</p>

Habitat	Comments
	 <p data-bbox="547 904 1042 952">Plate 6. Treeline 3 (looking south-west)</p>  <p data-bbox="547 1610 1042 1657">Plate 7. Treeline 4 (looking north-east)</p>

Habitat	Comments
	 <p data-bbox="549 904 995 936">Plate 8. Treeline 5 (looking north-west)</p>  <p data-bbox="549 1330 1407 1384">Plate 9. Mature treeline/treeline 6 with mature oak on corner 9 (looking north-west)</p>  <p data-bbox="549 1785 1209 1816">Plate 10. Treeline 1(left) and treeline 6 (right) (south-west)</p>
<p data-bbox="204 1839 501 1870">Upland/eroding river FW1</p>	<p data-bbox="549 1839 1407 2004">Adjoining the road and dry meadow and grassy verge is a small stream. This is piped under the junction before flowing south along the southwestern verge. This is a small fast-flowing stream which may have the potential to support trout in the lower reaches or in small pockets of deeper water. The banks include dense stands of hemlock water dropwort, cleavers, hogweed, herb Robert, wood avens, willowherb, montbretia and ground ivy.</p>

Habitat	Comments
	 <p data-bbox="549 904 1230 936">Plate 11. Eastern side of junction where stream is culverted</p>  <p data-bbox="549 1352 1406 1417">Plate 12. Watercourse at emergence point from culvert (southwestern of junction) with relatively deep plunge pool and high levels of shade</p>



Habitat	Comments
	 <p data-bbox="549 936 1407 999">Plate 13. Stream pictured to north-east of proposed development site (outside works area boundary)</p>
<p data-bbox="204 1055 521 1111">Buildings and artificial surfaces BL3</p>	<p data-bbox="549 1055 1394 1144">An agricultural building is located along the southwestern corner of the site and is located immediately adjacent to the road. This is a corrugated iron structure with corrugated iron roof.</p> <p data-bbox="549 1167 1102 1196">This building is of low to negligible potential for bats.</p> <p data-bbox="549 1218 1366 1274">The Ballinrea road and the L2473 local road meet at the site of the proposed development.</p>  <p data-bbox="549 1664 1214 1693">Plate 14. Agricultural building at south-west corner of site</p>
<p data-bbox="204 1720 336 1749">Scrub WS1</p>	<p data-bbox="549 1720 1394 1798">On the north-west corner of the junction, an area of scrub is located on the boundary of the dry meadows and grassy verge habitat. This area is dominated by bramble with occasional willow, red fescue, pennywort and remote sedge.</p>



Figure 5. Habitat map of proposed development site (approximate red line boundary)

7.2 Birds

The NBDC has recorded the following Annex I bird species within W76, 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-billed Chough (*Pyrrhocorax pyrrhocorax*), Red-throated Diver (*Gavia stellata*), Ruff (*Philomachus pugnax*), Sandwich Tern (*Sterna sandvicensis*) and Short-eared Owl (*Asio flammeus*). There is no suitable habitat for these Annex I species within the proposed development site boundary.

Bird species listed in Annex I of the Birds Directive are considered a conservation priority. During the survey, all birds seen or heard within the development site were recorded. Certain bird species are listed by BirdWatch Ireland as 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 (Gilbert *et al.* 2021). Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Bird species recorded during the site surveys are listed in **Table 7**.

Table 7. Birds recorded at proposed development site

Species		Conservation Status: Annex I of Birds Directive or Red/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>	
Mallard	<i>Anas platyrhynchos</i>	Amber list
Mistle thrush	<i>Turdus viscivorus</i>	
Robin	<i>Erithacus rubecula</i>	
Rook	<i>Corvus frugilegus</i>	
Woodpigeon	<i>Columba palumbus</i>	
Wren	<i>Troglodytes troglodytes</i>	

*Gilbert *et al.* (2021)

Generally, the treeline habitats on the boundary of the road support a mix of bird species that are relatively common in the Irish countryside. Native trees in particular, such as Oak, Ash, Hawthorn and Willow provide nesting sites and foraging areas for these common bird species. However, the location of the site adjacent to a busy road network means that it is less valuable than other, less disturbed habitats in proximity. Mallard was recorded within the stream which runs adjacent to the proposed development site. The site does not provide potential foraging resources for birds listed as SCIs for the Cork Harbour SPA.

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 high impact invasive species which have been recorded within grid square W76 (the 10km OS grid square which overlaps with the proposed development site) (**Table 8**).

Table 8. NBDC list of high impact invasive species recorded within W76

Species Group	Species
Bird	Rose-ringed Parakeet (<i>Psittacula krameri</i>)
Flowering plant	Cherry Laurel (<i>Prunus laurocerasus</i>)
Flowering plant	Common Cord-grass (<i>Spartina anglica</i>)
Flowering plant	Japanese Knotweed (<i>Fallopia japonica</i>)
Flowering plant	<i>Rhododendron ponticum</i>
Insect - beetle (Coleoptera)	Harlequin Ladybird (<i>Harmonia axyridis</i>)
Terrestrial mammal	American Mink (<i>Mustela vison</i>)
Terrestrial mammal	Brown Rat (<i>Rattus norvegicus</i>)
Terrestrial mammal	Coypu (<i>Myocastor coypus</i>)
Terrestrial mammal	Fallow Deer (<i>Dama dama</i>)
Terrestrial mammal	House Mouse (<i>Mus musculus</i>)
Terrestrial mammal	Sika Deer (<i>Cervus nippon</i>)
Tunicate (Urochordata)	Leathery Sea Squirt (<i>Styela clava</i>)

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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 and Himalayan Balsam, as follows: “any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [...] shall be guilty of an offence.”

One third schedule species, three-cornered leek, was recorded on the south-western corner of the site (See **Figure 5** for locations). This species can spread to semi-natural grassland and can form dense monocultural masses, which may pose a threat to indigenous biodiversity (Downen, 2011; BSBI, 2011). The life cycle three-cornered leek means it only has the potential to effect low growing spring flowers, with native bluebells considered to be at risk (Downen, 2011).

One other non-native invasive species i.e., Cherry Laurel was recorded at the proposed development site. This has a scattered distribution within treelines and is planted in some areas. This species is not included in the Third Schedule. Therefore, its 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). Cherry Laurel can outcompete native species and suppress regeneration by forming thick stands and avoids herbivory by wildlife (Maguire *et al.*, 2008).

8. Potential Impacts

Potential impacts could arise from the following:

- Potential impacts from surface water runoff
- Potential impacts from spread of invasive species
- In-combination impacts

8.1 Potential impacts on water quality from surface water runoff

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 and inadvertent spillages of hydrocarbons (from construction plant) and construction materials such as concrete and bitumen.

The existing drainage at the site is via an over the edge (OTE) system with the ditch running parallel to the carriageway and emptying into a stream via existing culverts. Although this stream is not mapped by the EPA, based on the location and flows of this watercourse, it is likely to be a tributary of the Owenacurra River/Estuary. As described above, this is a small stream with low flows. During construction works, runoff from the construction works could potentially flow into this stream in the absence of mitigation. It is noted that environmental control measures will be implemented during construction in line with standard guidelines (i.e., *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* (Department of Environment, Heritage and Local Government, July 2006), CIRIA document – *133 Waste Minimisation in Construction*, CIRIA document – *Guidelines Control of Water Pollution from Construction Sites – Guide to Good Practice*). It is noted that during operation, the existing OTE system shall be replaced with a positive drainage system to comply with current regulations (TII Section 7, and CCC Section 5.15 & 5.21). Surface water will be collected through kerb and gullies which will discharge to a proposed pipe network system and conveyed to a bypass petrol interceptor prior to out-falling to the stream via the existing culverts. 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.

The proposed works are small in scale and will be carried out over an **xx-week** period. In a worst-case scenario, spillage of materials such as bituminous mixtures, concrete and hydrocarbons (from construction plant) could occur in the absence in mitigation. However, the works are small in scale and there is no potential for significant spillage. Spillages of materials and contaminated runoff from the site works could impact on local water quality within the small stream adjacent to the road. This stream, although not mapped by the EPA, appears to be located approximately 5.1km upstream of the Owenacurra Estuary and/or Cork Harbour SPA. Given the small scale of works and the small scale of any potentially contaminated runoff, in the absence of mitigation contaminants will be diluted within the water network before reaching the water of SPA. Therefore, there is no potential for significant impacts to water quality within Cork Harbour SPA as a result of the proposed works.

The proposed development will involve upgrades to an existing road network. No significant changes in rates runoff or contamination of surface water runoff during operation of the road have been identified.

Given the above, no significant impact on local water quality during construction or operation have been identified and no potential impacts on the conservation objectives of Cork Harbour SPA will occur.

8.2 Invasive species

One third schedule species, three-cornered leek, and one other invasive species, Cherry Laurel, were recorded at the proposed development site. Three-cornered leek can spread to semi-natural grassland and can form dense monocultural masses, which may pose a threat to indigenous biodiversity within this habitat (Dowen, 2011; BSBI, 2011). The life cycle three-cornered leek means it only has the potential to effect low growing spring flowers, with native bluebells considered to be at risk (Dowen, 2011). The habitats within Cork Harbour SPA are largely transitional, estuarine habitats which cannot be colonized by three-cornered leek. There is no pathway for impact to the habitats within Cork Harbour SPA.

Cherry Laurel poses a threat to native woodlands/woodland habitats, habitat which are not qualifying habitats within Cork Harbour SPA. There is no pathway for impact to the habitats within Cork Harbour SPA.

Given the distance of the proposed development site from Cork Harbour SPA and the lack of impact pathways to qualifying habitats within the European site there is no risk to Cork Harbour SPA as a result of the spread of invasive species from the proposed development.

8.3 In combination impacts

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. 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. Other developments near site and potential in-combination impacts are identified in **Table 9**. In the absence of any significant impacts on

qualifying interests or conservation objectives associated with this project no significant in-combination impacts have been identified.

Table 9. Other developments near site and potential in-combination impacts

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
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"> • Ensure full compliance with relevant EU legislation • Prevent deterioration • Meeting the objectives for designated protected areas • Protect high status waters • 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>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 or cumulative 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. No long-term in-combination effect on European sites will occur.</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.</p>
Water Services Strategic Plan (WSSP, 2015)	<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</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</p>

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
	<p>improved water quality and biodiversity requirements through reducing:</p> <ul style="list-style-type: none"> • Habitat loss and disturbance from new / upgraded infrastructure; • Species disturbance; • Changes to water quality or quantity; and • Nutrient enrichment /eutrophication. 	<p>implementation plans (Tier 2) and water services projects (Tier 3). 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>No long-term in-combination effect on European sites will occur.</p>
NPWS Conservation Management Plans	<p>Conservation Management Plans have not been fully prepared for the European sites being assessed. However, conservation objectives are set for all sites.</p>	<p>The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest.</p> <p>A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.</p> <p>The resultant effects of conservation objectives are a net positive and there is no potential for in combination effects on European sites.</p>
Other proposed developments in the vicinity	<p>A search of developments within the vicinity of the proposed development in the previous 24-month period was carried out. Cork County Council have granted the following planning permissions in the vicinity of the proposed development site during this period.</p> <p>217455. The refurbishment and extension of existing dwelling together with all associated site development works.</p>	<p>Future developments will only be granted permission where discharges from same meet with relevant water quality standards.</p> <p>Given the nature, extent and scale of the proposed project, it is not anticipated that it will act in-combination with the plans or projects outlined, or other plans or projects, to give rise to in-combination impacts on Cork Harbour SPA.</p>

The potential for the proposed development to impact the Cork Harbour SPA has been assessed. In the absence of any significant potential impacts on the SCIs and conservation objectives for this European site and in the absence of significant impacts on its overall integrity, 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 development, 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 development 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 ZoI of effects from the proposed development and the potential in-combination effects with other plans or projects, the following findings are as follows:

The proposed development, 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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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.

Appendix 2. Drawings