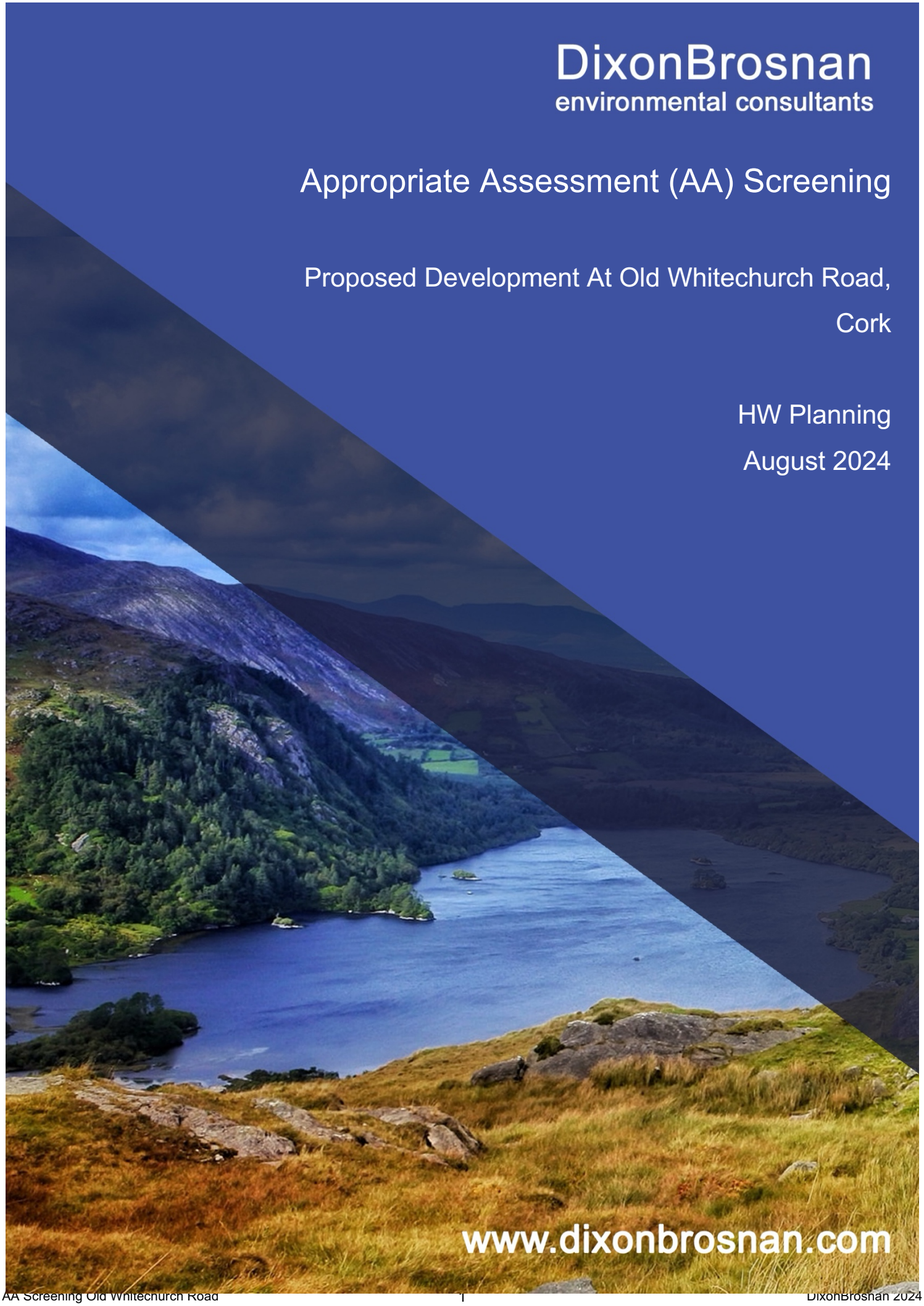
DixonBrosnan
environmental consultants

Appropriate Assessment (AA) Screening

Proposed Development At Old Whitechurch Road, Cork

HW Planning

August 2024



www.dixonbrosnan.com

DixonBrosnan

environmental consultants

Project	Appropriate Assessment Screening Proposed Development at Old Whitechurch Road, Cork	
Client	HW Planning	
Project Ref.	24016	
Report No.	24016.01	
Client Ref.	-	
Date	**Revision**	**Prepared By**
20/02/24	1st Draft	Sorcha Sheehy BSc PhD
09/05/24	2nd Draft	Carl Dixon BSc MSc
26/08/24	Issue to client	

DixonBrosnan Lios Ri Na hAoine, 1 Redemption Road, Cork.

Tel 086 851 1437| carl@dixonbrosnan.com | www.dixonbrosnan.com

Table of Contents

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 development and all associated site works at Old Whitechurch Road, 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 context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

- *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)
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021) and
- Office of Planning Regulator OPR Practice Note PN01 Appropriate Assessment Screening for Development Management.

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.

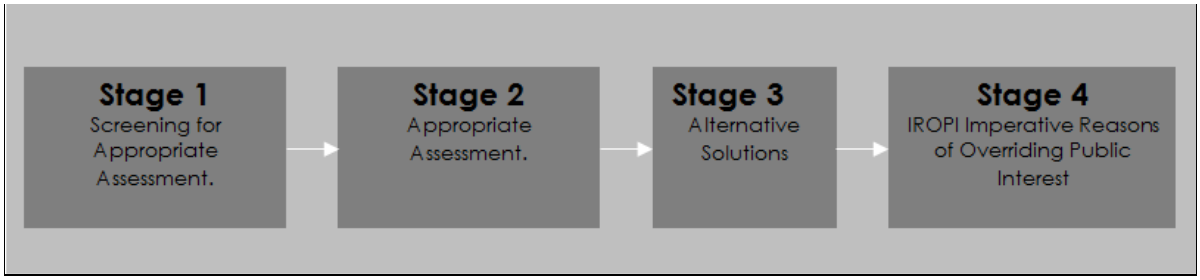
Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely 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 (Office for Official Publications of the European Communities, Luxembourg (EC, 2019);



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 Existing site

The proposed development site is located approximately 3.5km north of Cork City Centre (**Figure 1**). The 3.6ha site is located just north of the national route N20. A recently built road forms the northern boundary of the site and connects the Old Mallow Road to the northwest and the Old Whitechurch Road to the southeast. Lands to the south are characterized by commercial and residential use. To the north, lands remain largely rural and agricultural.

An area of land zoned for landscape preservation is located to the north of the site, just on the opposite side of the newly constructed road. A green buffer is located to the southeast of the site along the existing railway tracks. The Linear Park runs along part of the railway track to the southeast of the site.

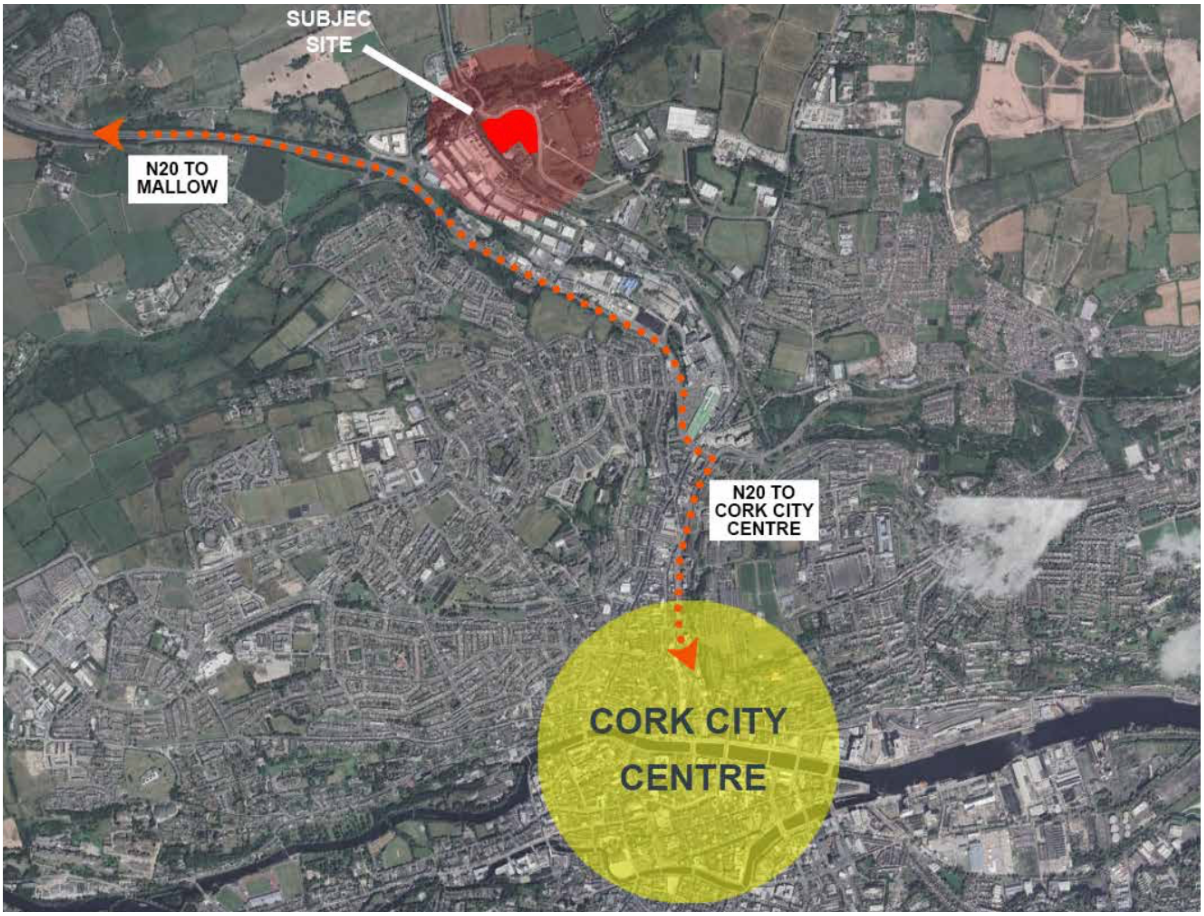


Figure 1. Site location | Source Google Earth

Figure 2. Overview of proposed development site | Source DG Architecture

3.2 Proposed Development

The proposed development will consist of 95 no. residential units The form, architecture and scale of the development is consistent with the immediate context and it will enhance the visual amenity of the site as a whole.

An overview of the proposed development is shown in **Figure 2.**

3.3 Surface Water Drainage Network

The surface water drainage network for the proposed development was modelled using the Microdrainage software application. The surface water pipe lengths, slopes, contributing impermeable areas, upstream invert levels, upstream cover levels and pipe diameters were entered into the model using the drawings supplied.

The global variables required for the model were the M5-60 and Rainfall Ratio. These two factors may be read from maps contained in the Wallingford procedure. They enable the program to calculate the intensity, duration and frequency characteristics of storms.

The surface water drainage network was assessed for compliance with maximum and minimum velocities, pipe length etc. The network was designed to ensure velocities in the network and pipe gradients did not exceed the maximum velocity of 4.0m/s. The minimum velocity allowed was 0.75m/s.

The design of the drainage network was assessed using events with a range of different durations to determine the critical event for each return period analysed as follows:

- 1 in 2-year return period events were used to ensure that the system did not surcharge;
- 1 in 100 year return period events were used to ensure that flooding did not occur.

The layout of the proposed storm water network is shown on the Proposed Stormwater & Foul Sewer Layout Plan 6254-4020 (**Appendix 2**).

The hard-surfaced area that will be draining to the interceptor located between MH's SW.003 & SW.002 is approximately 13,620². A Conder CSNB25s interceptor with a catchment capacity of 13,890m² will be provided.

The proposed petrol interceptors from Conder Environmental also include a silt storage capacity in addition to the oil storage capacity that allow silt to be collected in the interceptor prior to discharge to the existing network.

3.4 Foul Sewer Design

A Pre-Connection Enquiry was submitted to Irish Water. The Irish Water Reference Number for this enquiry is CDS22007050. The response to this Enquiry was issued by Irish Water on 11th November 2022. This confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Irish Water network could be facilitated (See **Appendix 3**).

The foul sewer has been designed using the System 1 and Simulation Modules of the Micro-drainage package. The foul network design addresses present day design issues and can view velocities at Full Bore, Proportional Depth and 1/3 flow.

A model of the proposed foul drainage network was built using the micro-drainage software applications. The model was analysed and amended until the results met with the design criteria specified.

The network has been designed to achieve self-cleansing velocities at 1/3 flow whilst maintaining minimum gradients.

Development Breakdown

96 No. Residential Units

Section 3.6 of The Irish Water Code of Practice Wastewater Infrastructure states that for the gravity sewers shall be designed to carry a minimum wastewater volume of 6 times the dry weather flow (6DWF) which is to be taken as 446 litres per dwelling

Loading = (95) (446) / (24) (60) (60) = 0.490 litres/second

6DWF = 2.94 litres/second

The layout of the proposed foul sewer network is shown on the Proposed Stormwater & Foul Sewer Layout Plan 6254-0020 (**Appendix 2**).

The overall quantity of wastewater for the proposed development is estimated at 42.34m³ per day.

The foul waste within the development will be collected via an internal gravity network and will discharge to the existing public foul sewer.

All works will be in accordance with Irish Water specifications and requirements.

All works will be in accordance with Irish Water Code of Practice for Wastewater Supply & the Wastewater Infrastructure Standard Details Document Number: IW-CDS-5030-01.

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).

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 Natura 2000 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 Natura 2000 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. Natura 2000 site) through a particular pathway (e.g. a watercourse which connects the proposed development with the Natura 2000 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. The following Opinion of Advocate General Kokott delivered on 19th January 2023. Eco Advocacy CLG v An Bord Pleanál is noted.

Request for a preliminary ruling from the High Court (Ireland). Case C-721/21 At the stage of screening the need for an appropriate assessment under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 2013/17/EU of 13 May 2013, features of the plan or project involving the removal of contaminants that may have the effect of mitigating a harmful effect on the protected site may be taken into account, where it is clear, on the basis of objective considerations, that those features were incorporated into the design as standard features

irrespective of any effect on the protected site concerned, and all reasonable scientific doubt concerning their effectiveness can be ruled out.

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

A site walkover survey was carried out on the 14th of February 2024 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 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 Old Whitechurch Road/Kilnap 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 City Heritage and Biodiversity Plan (2021-2026);
- Cork City Development Plan 2022-2028 (Cork City Council 2021);
- 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 and

- Cork City D0033-01 Wastewater Treatment Plant (WWTP) Annual Environmental Report 2022 (EPA 2023)

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 likely zone of influence of the proposed development have been identified in **Table 1** and shown in **Figure 3**.

The Glennamought Stream, a tributary of the River Bride, is located c.118m northwest of the proposed development site. This stream is located c.8.9km upstream of Cork Harbour SPA and c.13.5km upstream of the Great Island Channel SAC (via River Bride, River Lee and Lee Estuary). Therefore, contaminated surface water runoff/discharges during construction and operation could potentially impact on water quality within the Glennamought Stream and other watercourses downstream, potentially leading to impacts on water quality with Cork Harbour SPA and Great Island Channel SAC. Habitats within the proposed development site could potentially provide *ex-situ* habitats for SCI species of Cork Harbour SPA. The proposed development could therefore lead to the loss of *ex situ* foraging habitats for SCI birds. Given the hydrological connection, there is also potential for invasive species to spread outside the proposed development site to these European sites.

Wastewater from the site will ultimately discharge into Cork Harbour via the Cork City wastewater treatment plant (WWTP).

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

The proposed development is not hydrologically connected to the Blackwater River (Cork/Waterford) SAC. Given the distances involved and the lack of hydrological connection, no pathway for impact has been identified between the proposed development 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)
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	9.6km southeast (13.5km downstream). A source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Great Island SAC) via a potential pathway (impacts on water quality, spread of invasive species during construction or operational phase and wastewater discharges during operation).	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
Blackwater River (Cork/Waterford) SAC	002170	12.7km north. Located in a separate water catchment. No pathway exists	**Habitats** 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1220 Perennial vegetation of stony banks 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*)* **Species** 1096 Brook Lamprey (*Lampetra planeri*) 1106 Salmon (*Salmo salar*) 1421 Killarney Fern (*Trichomanes speciosum*) 1095 Sea Lamprey (*Petromyzon marinus*) 1355 Otter (*Lutra lutra*) 1103 Twaite Shad (*Alosa fallax fallax*) 1092 White-clawed Crayfish (*Austropotamobius pallipes*) 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*) 1099 River Lamprey (*Lampetra fluviatilis*)

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
Special Protection Area (SPA)			
Cork Harbour SPA	004030	6.1km southeast (8.9km 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 or operational phase and wastewater discharges during operation).	**Birds** A056 Shoveler *(Anas clypeata)* A149 Dunlin *(Calidris alpina)* A140 Golden Plover *(Pluvialis apricaria)* A050 Wigeon *(Anas penelope)* A028 Grey Heron *(Ardea cinerea)* A069 Red-breasted Merganser *(Mergus serrator)* A142 Lapwing *(Vanellus vanellus)* A130 Oystercatcher *(Haematopus ostralegus)* A141 Grey Plover *(Pluvialis squatarola)* A052 Teal *(Anas crecca)* A054 Pintail *(Anas acuta)* A157 Bar-tailed Godwit *(Limosa lapponica)* A162 Redshank *(Tringa totanus)* A183 Lesser Black-backed Gull *(Larus fuscus)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A004 Little Grebe *(Tachybaptus ruficollis)* A160 Curlew *(Numenius arquata)* A182 Common Gull *(Larus canus)* A048 Shelduck *(Tadorna tadorna)* A017 Cormorant *(Phalacrocorax carbo)* A193 Common Tern *(Sterna hirundo)* A005 Great Crested Grebe *(Podiceps cristatus)* A156 Black-tailed Godwit *(Limosa limosa)* **Habitats** Wetlands

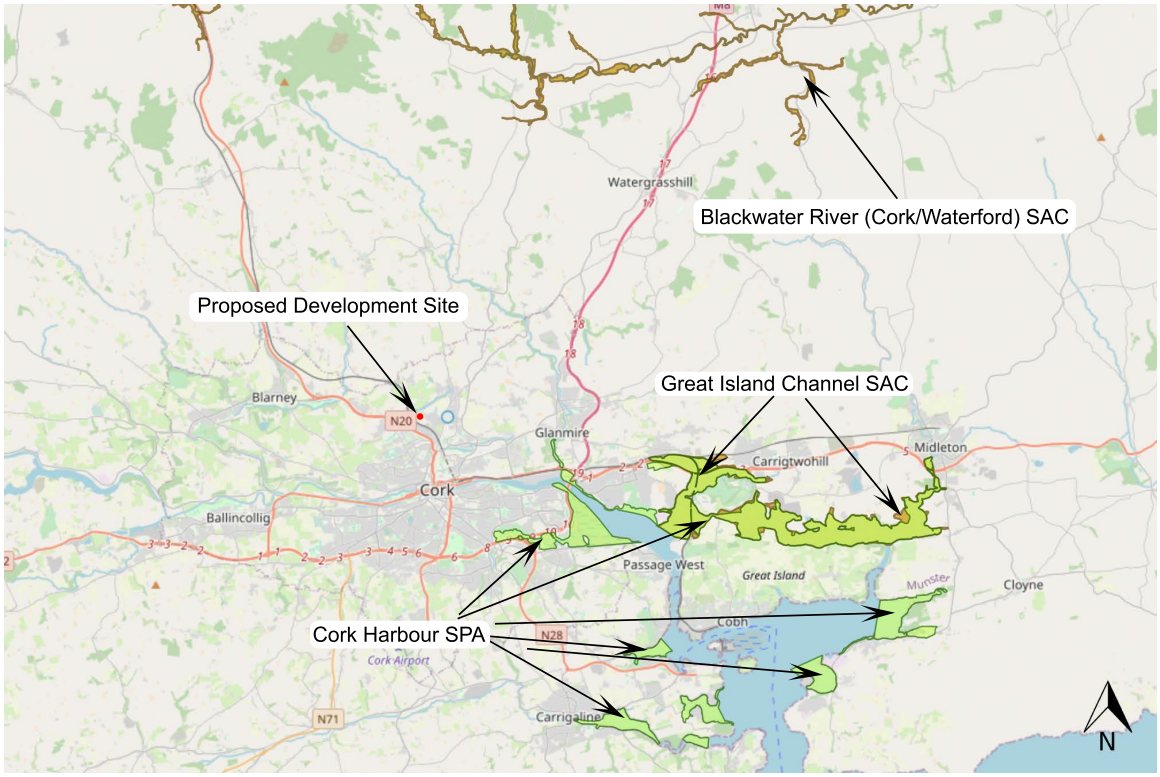


Figure 3. Natura 2000 sites within zone of influence of the proposed development site | Source EPA Envision Mapping | Not to scale

5.2 Site Synopses

5.2.1 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 Poulnabibe 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, Nepthys 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.

5.2.2 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. The SAC has high ornithological importance, supporting regularly c.50% of the wintering waterfowl of Cork Harbour. Significant proportions of the internationally important populations of *Limosa limosa* and *Tringa totanus* which winter in Cork Harbour utilise the site and it supports nationally important populations of a further 12 species, including *Pluvialis apricaria* and *Limosa lapponica*, both listed on Annex I of the EU Birds Directive.

A full site synopsis for the Great Island Channel SAC 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 current 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 current 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 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 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 (*Glauco-Puccinellietalia maritimae*)	Restore

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

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

Species code	Species		Conservation objective
A056	Shoveler	*Anas clypeata*	Maintain
A149	Dunlin	*Calidris alpina*	Maintain
A140	Golden Plover	*Pluvialis apricaria*	Maintain
A050	Wigeon	*Anas penelope*	Maintain
A028	Grey Heron	*Ardea cinerea*	Maintain
A069	Red- breasted merganser	*Mergus serrator*	Maintain
A142	*Lapwing*	*Vanellus vanellus*	Maintain
A130	O*ystercatcher*	*Haematopus ostralegus*	Maintain
A141	Grey plover	*Pluvialis squatarola*	Maintain
A052	Teal	*Anas crecca*	Maintain
A054	Pintail	*Anas acuta*	Maintain
A157	Bar-tailed Godwit	*Limosa lapponica*	Maintain
A162	Redshank	*Tringa totanus*	Maintain
A183	Lesser Black-backed gull	*Larus fuscus*	Maintain
A179	Black-headed Gull	*Chroicocephalus ridibundus*	Maintain

Species code	Species		Conservation objective
A004	Little Grebe	*Tachybaptus ruficollis*	Maintain
A160	Curlew	*Numenius arquata*	Maintain
A182	Common Gull	*Larus canus*	Maintain
A048	Shelduck	*Tadorna tadorna*	Maintain
A017	Cormorant	*Phalacrocorax carbo*	Maintain
A193	Common Tern	*Sterna hirundo*	Maintain
A005	Great crested grebe	*Podiceps cristatus*	Maintain
A156	Black-tailed Godwit	*Limosa limosa*	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

5.4.1 Cork Harbour SPA

The specific conservation objectives for species listed as conservation interests for the Cork Harbour SPA (**Table 4**) 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.

The conservation objectives for the SCI species of the Cork Harbour SPA are to maintain their favourable conservation condition in the Cork Harbour SPA (NPWS 2014b). The favourable conservation condition of all the non-breeding SCI species are defined by the same two attributes and targets, which are shown in **Table 4**. The favourable conservation condition of the Common Tern SCI species is defined by six attributes and targets, which are shown in **Table 4**.

The conservation objective for the Wetlands SCI of the Cork Harbour SPA is “to maintain the favourable conservation condition of the wetland habitat in Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it” (NPWS, 2014a). This is defined by a single attribute and target, which is shown in **Table 4**.

Table 4. 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

5.4.1 Great Island Channel SAC

A number of surveys on the qualifying interests of the Great Island Channel SAC were 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 waste water loadings generated by the 2022 population targets given in the *Cork County Development Plan 2022* (Cork County Council 2013).

The report concluded that Mudflats and sandflats not covered by seawater at low tide are currently at an unfavourable/bad condition. The main issues relating to the conservation status of the habitat are pollution and Spartina invasion. However the prospects of recovery are good, and will not be compromised by population targets of the *Draft Cork County Development Plan* once the proposed upgrades to WWTPs are in place in advance of any population increase, and provided that on-going monitoring is carried out to track any changes in the water quality of the discharges and surface water (O'Neill *et. al.* 2014). The conservation objectives for this QI habitat are listed in **Table 5**.

Table 5. QI habitats for which a potential impact has been identified – specific targets - Mudflats and sandflats not covered by seawater at low tide

Attribute	Measure	Target
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes
Community distribution	Hectares	The following sediment communities should be maintained in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex

With regard to Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), the current condition was deemed to be unfavourable to inadequate (O'Neill *et al.* 2014). The conservation objectives for this QI habitat are included in **Table 6.** The main issues relating to the conservation status of the habitat are coastal squeeze, Spartina invasion and erosion (NPWS 2014a). The prospects of recovery are good to fair, however the time frame is uncertain due to complexity of processes involved and insufficient data on the physical sedimentary and tidal processes in the SAC (O'Neill, *et. al.,* 2014).

Table 6. Conservation Objectives for Atlantic salt meadows (Glauco-Puccinellietalia maritimae) for Great Island Channel SAC

Attribute	Measure	Target
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. Based on data from Saltmarsh Monitoring Project (SMP) (McCorry and Ryle, 2009). Two sub-sites that supported Atlantic salt meadow were mapped (1.30ha) and additional areas of potential saltmarsh (17.60ha) were identified from an examination of aerial photographs, giving a total estimated area of 18.90ha. Saltmarsh habitat has also been recorded at two other sub-sites within the SAC (Curtis and Sheehy Skeffington, 1998).
Habitat distribution	Occurrence	No decline, subject to natural processes
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore or where necessary restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: flooding regime	Hectares flooded; frequency	Maintain/restore natural tidal regime
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession

Attribute	Measure	Target
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation structure: vegetation cover.	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
Vegetation structure: negative indicator species: *Spartina anglica*	Hectares	No significant expansion of *Spartina*. No new sites for this species and an annual spread of less than 1% where it is already known to occur

Both QI habitats have been mapped in the Slatty Water area to the southwest of the proposed development site (McCorry & Ryle, 2009). Carrigtwohill saltmarsh is located in Cork Harbour along the northern side of Foaty Island and 1km east of Carrigtwohill Village. This part of Cork Harbour is called Slatty Water and is part of the secondary branch of the estuary that is positioned between little Island and Foaty Island. The Atlantic Salt Meadows habitat is mainly found fringing the southern Slatty Water shoreline (the northern shoreline of Foaty Island) (McCorry & Ryle, 2009).

Accretion and erosion are natural elements of saltmarsh systems. Maintaining the sediment supply is vital for the continued development and natural functioning of a saltmarsh system. Interruption to the sediment circulation through physical structures can starve the system and lead to accelerated erosion rates. At Carrigtwohill, the northern and eastern shorelines of the Slatty Water have been significantly modified by road construction. Part of the saltmarsh has also been infilled (probably between 2001-2005). This saltmarsh was visible on the 2000 series aerial photos but is now completely destroyed and covered in spoil. The Saltmarsh Monitoring Project noted that there were no indications of significant erosional trend at Carrigtwohill (McCorry & Ryle, 2009). The target for the habitat is to maintain the natural circulation of sediment and organic matter, without any physical obstructions.

6. Water Quality data

6.1 River Basin Management Plan for Ireland 2022-2027 (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 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 7** and the location of these shown in **Figure 4.**

Table 7. WFD Status

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19)
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, 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 km². 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. 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. **RBMP 2nd Cycle** The proposed development site is located within the Kiln_SC_10 subcatchment. Two out of three river water bodies within this subcatchment are unassigned but AT RISK due to elevated nutrients, Bride (Cork City)_010 and Bride (Cork City)_020. Glennamought Trib Bride_010 is under REVIEW due to its unassigned status. Diffuse urban appears to be the most significant pressure present within the subcatchment due to Cork City and its surrounds. Channelisation may also impact Bride (Cork City)_020 due to the presence of a drainage district scheme. Wastewater discharges from the proposed development will discharge into Cork Harbour at Lough Mahon.

RBMP 3rd Cycle Waterbodies relevant to the proposed project			
Waterbody	**Waterbodies risk**	**WFD Status 2016-2021**	**Pressure Category**
GLENNAMOUGHT TRIB River BRIDE_010	Review	Moderate	Urban Runoff
BRIDE (Cork City)_020	At risk	Poor	Urban Runoff
Lee Cork Estuary Upper	At risk	Moderate	Urban Runoff, urban wastewater
Lee Cork Estuary Lower	At risk	Moderate	Urban Runoff, urban wastewater
Lough Mahon	At risk	Moderate	Urban Runoff, urban wastewater

Source: EPA envision mapping and www.catchments.ie

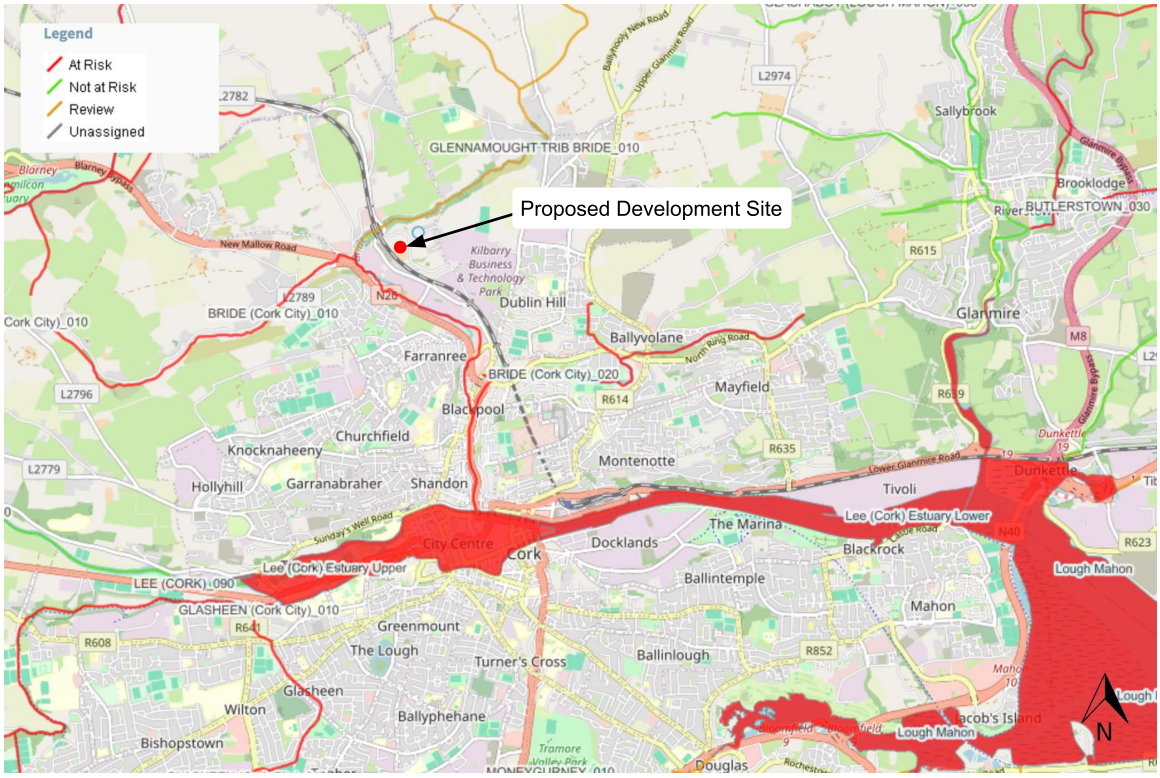


Figure 4. WFD waterbodies in the vicinity of the proposed development | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | not to scale

6.2 Urban Wastewater Treatment Directive

The Waste Water Discharge (Authorisation) Regulations 2007 (S.I. 684 of 2007) gives effect to the requirements of the Urban Waste Water Treatment Directive (Directive 91/271/EEC) and the Water Framework Directive (2000/60/EC) in Ireland. The Urban Waste Water Treatment Directive (UWWTD) lays down the requirements for the collection, treatment and discharge of urban waste-water and specifies the quality standards which must be met — based on agglomeration size — before treated waste-water is released into the environment.

The priority objective for this river basin planning cycle is to secure compliance with the Urban Waste Water Treatment Directive and to contribute to the improvement and protection of waters in keeping with the water-quality objectives established by this Plan. Achieving this objective entails addressing waste-water discharges and overflows where protected areas (i.e. designated bathing waters, shellfish waters and Freshwater Pearl-Mussel sites) or high-status waters are at risk from urban waste-water pressures.

As part of the proposed development wastewater discharging from the proposed development will be conveyed to the Cork City WWTP (D0033-01) for treatment prior to discharging into the Cork Harbour at Lough Mahon. Cork Harbour is a Nutrient Sensitive Area listed in accordance with the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC on Urban Waste Water Treatment Regulations 2001 (S.I. 48 of 2010).

7. Site Survey

A site walkover survey was carried out on the 14th of February 2024. 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 was 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.

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 was 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.

A current overview of habitats recorded within the site is shown in **Figure 5** and the habitats recorded on site are described in **Table 5.** No Annex I habitats or rare plant species were recorded during the site survey.

Table 5. Habitat present within the proposed development site.

Habitat	Comments
Hedgerow WL1/Stone walls and other stonework BL1	A small section of residual hedgerow is located at the southeast corner of the site. This includes mature trees with Hawthorn, Elder and Blackthorn. The understory in dominated by Bramble. Some remnants of old stone wall were recorded along this field boundary with Polypody, Willowherb, Ivy and Cleavers recorded along the wall. At the centre of the site, there is a small section of residual hedgerows with some areas of collapsing stonewall. A small number of mature Hawthorn are present within this hedgerow as well as Bramble, Hogweed, Nettle and Pennywort.

Habitat	Comments
	 **Plate 1. Remnant of old hedgerow at southeast corner of the site**  **Plate 2. Remnant of hedgerow at centre of site**
Treeline WL2/Hedgerow WL1/Stone wall and other stonework BL1	A treeline/hedgerow runs along part of the external southern boundary adjoining a farm/property. This was likely to be previously a hedgerow, but trees have matured and developed in the absence of management. Residual sections of old stone wall are also present. Bramble scrub has also begun to encroach into the adjoining grassland. Tree species recorded include immature Ash, Elder and Hawthorn. Understorey species include Bramble, Pennywort, Dog violet, Hogweed. Along the western boundary of the site, adjoining the road another overgrown Treeline/Hedgerow is present. This includes mature Hawthorn, immature Ash, Semi-mature Spruce and Elder. Understorey species include Bramble, Ivy, Pennywort, Gorse, Soft shield fern, Wood sage and Bramble. Scrub encroachment is evident along parts of this boundary.

Habitat	Comments
	 **Plate 3. Treeline/hedgerow along external boundary (southern).**  **Plate 4. Treeline/hedgerow along external boundary (Southern)**  **Plate 5. Overgrown in absence of active management (southern)**

Habitat	Comments
	 **Plate 6. Western treeline/hedgerow**  **Plate 7. Western treeline/hedgerow will gorse dominant in some sections**  **Plate 8. Remnants of old stone wall evident in undergrowth along western hedgerow**

Habitat	Comments
Improved agricultural grassland GA1/Scrub WS1	Most of the site is dominated by improved agricultural grassland which is grazed by horses. In parts of the site, where grazing is less frequent, some areas of scrub have begun to develop. Some areas of the site have previously been cleared and little topsoil remains in these areas. Mounds of topsoil are still present and these grown over, largely colonised by Buddleia. Species recorded within grassland habitat included Dock, Spear Thistle, Ribwort Plantain, Sorel, Creeping buttercup, Red fescue. Within areas of scrub Bramble and Gorse of dominant.  **Plate 9. Improved agricultural grassland with small areas of scrub developing**  **Plate 10. Topsoil removed in some areas.**

Habitat	Comments
	 **Plate 11. Scrub developing on margins of site**  **Plate 12. Colonised topsoil mounds dominated by Buddleia**  **Plate 13. Stockpiled topsoil within grassland**

Habitat	Comments
Buildings are artificial surfaces BL3	The northern boundary of the site is delineated by a curved, newly constructed road.  **Plate 14. Newly constructed road**
Eroding river FW1 (Outside proposed development site)	The Glennamought Stream is located c.118m northwest of the proposed development site. There is a discharge to the river just west of the proposed development site and appears to drain surface water from the proposed development site. The Glennamought Stream is a first order tributary of the River Bride. Brown Trout and Eel are known to occur in the River Bride. Near the proposed development site the Glennamought stream is fast flowing, with a natural riffle-glide sequence and likely to be suitable for Brown Trout and Eel.  **Plate 15. Glennamought Stream to the west of proposed development site**

Habitat	Comments
	 **Plate 16. Discharge point to the west of proposed development site.**

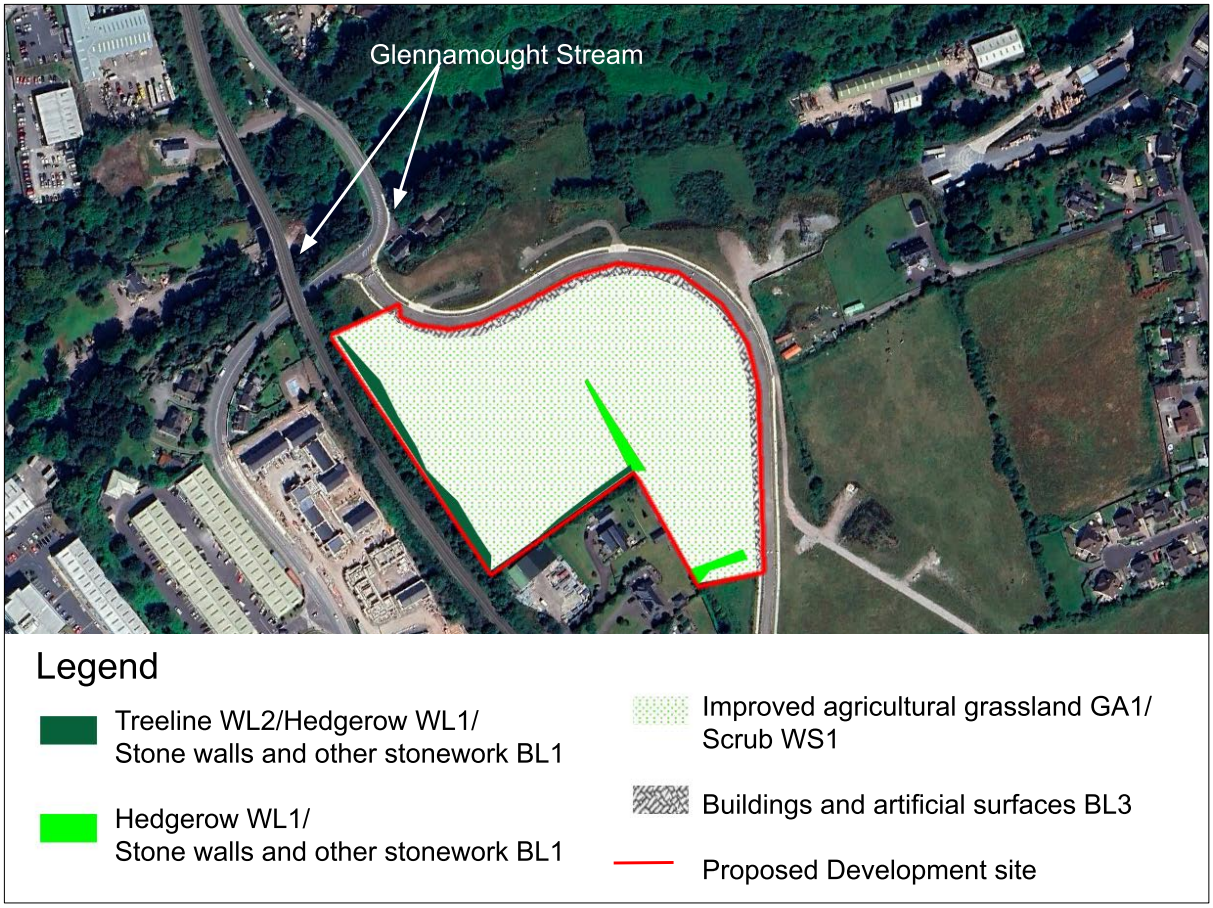


Figure 5. Habitat map of proposed development site (approximate red line boundary)

During the walkover survey, all birds seen or heard within the development site were recorded. The majority of birds utilising the proposed works areas were common in the local landscape. 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.

No Annex I bird species were recorded during the site surveys. Species recorded during the surveys are shown in **Table 6**.

Table 6. Bird Species recorded during site surveys

Species		Birds Directive Annex	BOCCI*	
		I	Red List	Amber List
Sturnus vulgaris	Starling			X
Turdus merula	Blackbird			
Erithacus rubecula	Robin			
Prunella modularis	Dunnock			
Carduelis carduelis	Goldfinch			
Troglodytes troglodytes	Wren			
Turdus philomelos	Song Thrush			
Corvus frugilegus	Rook			
Pica pica	Magpie			
Corvus monedula	Jackdaw			
Parus caeruleus	Blue Tit			
Fringilla coelebs	Chaffinch			
Saxicola rubetra	Stonechat			
Columba palumbus	Woodpigeon			

* Gilbert *et al* (2021)

The proposed development site is dominated by grassland with some areas of scrub with a mixture of common grass and herbaceous species. Hedgerows and treelines along external and internal boundaries are generally of low to moderate quality and provide forging resources for common birds species. There are no specialized habitats that would be likely to support a more diverse assemblage of birds such as wetlands, native woodland etc.

Overall, most of the proposed development site is of low to moderate local value for terrestrial bird species that are relatively common in the Irish countryside. No species of high conservation status were recorded within the proposed development site. No signs of other significant nesting species were recorded. No birds listed as SCIs for the Cork Harbour SPA were recorded.

No signs of protected mammal species were recorded i.e. Badgers and/or Otter during the site survey. Rabbit usage of the site was extensive.

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."*

No third schedule species were recorded within the proposed development site. The non-native species Buddleia was recorded and is included the NRA *Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads* (NRA 2010) as these species have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure.

8. Potential Impacts

Potential impacts could arise from the following:

- 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
- Spread of invasive species
- In-combination Impacts

8.1 Potential impacts from loss of habitat

The proposed development site is located 6.1km and 9.6km respectively from Cork Harbour SPA and Great Island Channel SAC. 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 and no qualifying habitats for these European sites were recorded.

In a recent study around Cork Harbour (NIS for the M28 Cork to Ringaskiddy Project (RPS 2017)) a detailed study was carried out on grasslands in the vicinity of the Harbour to determine the value of these habitats for roosting and foraging SCI birds. This study found that while SCI birds occasionally used fields, they found that these grassland areas are not routinely used as a feeding habitat for the SCI species associated with Cork Harbour SPA. In addition, this study concluded that there is, effectively, an unlimited supply of potentially suitable grassland habitat in the vicinity of Cork Harbour, although there may be variations in habitat quality.

There is nothing to differentiate the grassland habitats within the proposed development site from other similar habitats in the vicinity and at this distance from the SPA boundary they could 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 fields surrounding the proposed development site during the site survey. Therefore, while SCI birds for Cork Harbour SPA could occasionally forage or roost at the proposed development site, given the availability of large areas of similar habitat in the immediate vicinity and wider area, there will be no impact on SCI from loss of foraging or roosting habitat. Therefore, the proposed development will not have significant effects on SCI birds for Cork Harbour SPA due to habitat loss.

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, deterioration or fragmentation of habitats 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. If of sufficient severity, there could be impacts on reproductive success. Disturbance can cause sensitive species, such as birds, to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

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 located 6.1km from the SPA boundary and is located adjacent to existing urban developments. This area is subject to noise disturbance and light pollution from existing urban/road developments. 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. During operation, noise levels will be in-line with baseline levels for this area.

As noted above, there is nothing to differentiate the habitats within or in proximity to the proposed development site from other grasslands in this area. No valuable habitat for SCI species was recorded within or adjacent to the proposed development site. The construction phase of the project will increase noise and disturbance. 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 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.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate into the fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed

as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al*. 1993).

High levels of silt can also impact on fish species. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. If of sufficient severity, aquatic invertebrates may be smothered by excessive deposits of silt from suspended solids. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Cement can also affect fish, plant life and macroinvertebrates by altering pH levels of the water.

Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced. Significant impacts on fish stocks could impact on piscivorous birds i.e., Little Grebe, Great Crested Grebe, Cormorant, Grey Heron and Common Tern due to a reduction in prey availability. Such run-off if severe could potentially result in changes in the ecology of the estuary.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines. 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 Natura 2000 sites. Given the large size of the Cork Harbour SPA, the dilution provided in the estuarine environment and naturally fluctuating levels of silt within these estuarine habitats, impacts are only likely to arise from extremely severe levels of siltation or major spills of hydrocarbons. The small scale of the proposed development means there is no significant risk of severe silt levels being generated or major spills of hydrocarbons. A natural buffer zone exists between the proposed development site and the Glennamought Stream which is surrounded by a band of riparian vegetation. The stream is located c.118m from the proposed development site boundary and is separated from the site by the Old Youghal Road. Therefore, construction runoff from the site (in the absence of mitigation) to the stream will be negligible. Given the distance upstream from Cork Harbour SPA and Great Island Channel SAC (>8.9km), and the dilution available in local waters at this distance there is no potential for likely significant effects on water quality with Cork Harbour/Great Island Channel from surface water runoff during the construction works.

As per Sustainable Drainage Systems (SuDS) principles, management of surface water run-off during operation of the residential development has been built into the project design. The proposed storm water drainage system has designed to cater for all hard surfaces within the proposed development including roadways, roofs and parking areas. All surface water generated within the proposed development will flow through a proposed surface water network and hydrocarbon interceptor (with silt storage capacity) prior to discharge to the existing network (and ultimately the Glennamought Stream via an existing outfall). The network has been designed to ensure there is no increased risk of flooding and there will be no significant change to the flows within the stream. These standard design measures will ensure that local water quality with the Glennamought Stream is protected.

Given the small scale of the proposed development, the distance upstream of the Cork Harbour SPA and Great Island Channel SAC and subsequent dilution available in local watercourses, there is no significant risk silt or hydrocarbon contamination within these Natura

2000 sites during construction or operation. Therefore, no significant effect on water quality within Natura 2000 sites is predicted to occur due to surface water runoff from the proposed development.

8.4 Impacts on water quality from discharges of wastewater and surface water during operation

The proposed residential development could potentially result in an increase in nutrients discharging to Cork Harbour via the Cork City Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth.

The proposed residential development could potentially result in an increase in nutrients discharging to Cork Harbour via the Lough Mahon discharge for the Cork City WWTP. Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth, which in turn could impact on feeding success for birds listed as qualifying interests for the Cork Harbour SPA.

The Cork City WWTP has a design capacity i.e., Population Equivalent (P.E.) of 413,200. The WWTP obtained a discharge licence (Reg: D0033-01) from the EPA and has assigned emission limit values (ELV's) for a range of parameters to ensure a high degree of protection to the Lough Mahon and surrounding waters.

Treated effluent from the proposed development will discharge from the Cork City WWTP via the main treated effluent line. The discharge licence assigns ELV's for biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), Total Nitrogen (Total N), Total Phosphorous (Total P), Ammonia Total (as N), orthophosphate (As P) and pH. The ELVs are set based on the full design capacity (P.E 413,200) and are aimed at providing a high degree of protection to the receiving water body and to ensure the receiving waterbody is capable of accommodating the proposed discharge without causing or exacerbating a breach in the relevant standards.

The AER notes that the final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2022. The 2022 AER noted the following:

- The coastal/transitional ambient monitoring results do not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: BOD, 5 days with Inhibition (Carbonaceo mg/l, Total Nitrogen mg/l.
- The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The discharge from the wastewater treatment plant does not have an observable impact on the water quality.
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

Based on the planned occupancy, the P.E. for the proposed development has been conservatively calculated at 259. This would increase the current WWTP load from 235,720 (based on 2022 EPA data) to 235,979 which is well within the 413,200 P.E. design capacity. Given the limited scale of the proposed development and the ability of the WWTP to cater for the additional loading, no impact is expected.

Overall, the discharge from the WWTP does not have an observable negative impact on receiving water quality nor a negative impact on the Water Framework Directive Status. The addition of the effluent discharge from the proposed residential development to the Cork City WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, the impacts from the proposed development will be negligible given the current operating conditions at the WWTP. No significant effects on water quality within Cork Harbour are predicted to occur due to wastewater discharges during operation. The proposed development will not have a significant impact on Cork Harbour SPA or Great Island Channel SAC due to operational wastewater discharges.

8.5 Spread of Invasive Species

No high-risk invasive species were recorded within the proposed development. While the medium impact species Buddleia was recorded, this species does not present a significant risk to the Cork Harbour SPA or Great Island Channel SAC. Therefore, no risk from the spread of invasive species will occur. Therefore, there no significant effects on Cork Harbour SPA or Great Island Channel SAC will occur via the spread of invasive species.

8.6 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.

The main threats to the conservation objectives of the Great Island Channel SAC, according to the Natura 2000 form for the SAC, 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. 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.

High negative threats, pressures and activities identified for the Cork Harbour SPA include roads, motorways, port areas, industrial or commercial areas, urbanised areas, human habitation and marine and freshwater aquaculture.

Other developments near the proposed development site and their potential in-combination impacts are listed in **Table 8**.

Table 8. Other developments near site and potential in-combination impacts

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
River Basin Management Plan 2022-2027	The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027. • 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.	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.
Inland Fisheries Ireland Corporate Plan 2021-2025	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. To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected. 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. 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.	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.
Irish Water Capital Investment Plan 2020-2024	Proposals to upgrade and secure water services and water treatment services countrywide.	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.

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
Water Services Strategic Plan (WSSP, 2015)	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: Habitat loss and disturbance from new / upgraded infrastructure; Species disturbance; Changes to water quality or quantity; and Nutrient enrichment /eutrophication.	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. 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.
Other developments	A search of planning from Cork City Council and ABP was carried out for developments within the vicinity of the proposed development site in the past 24-month period. Apart from small scale developments i.e. single dwellings and alterations to existing commercial and residential premises, one project was noted. 2342173. Townlands of Carhoo, Kilcully c.600m east of proposed development site. Permission for an underground grid connection at this site within the townlands of Carhoo, Kilcully and Kilbarry, Cork City. The development will	In the event that these projects were to run concurrently, there is potential for local disturbance effects on wildlife in the short term. However, no significant effects on Natura 2000 sites have been identified. Future developments will only be granted permission where discharges from same meet with relevant water quality standards.

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	
	consist of: A 10-year permission for the installation of an underground grid connection within an overall site area of 2.81 hectares. The underground grid connection is to be installed within the L2951 and L2963 public roads, this includes the installation of 3 no. underground medium voltage electrical cables, 1 no. fibre communications cable, 2 no. joint bays and associated infrastructure to allow communications between the proposed 38kV on-site substation and the Kilbarry 110kV substation, Blackpool, Cork City. The total length of the cable is c. 4,449m., of which c. 2,428m. within the jurisdiction of Cork City Council and c. 2021m. will be within the jurisdiction of Cork County Council. A concurrent planning application will be lodged with Cork County Council for the remainder of the underground cable within public roads and associated solar farm including proposed 38kV substation to allow connection to the proposed 38kV substation in the townland of Rahanisky, County Cork under Section 34 of the Planning and Development Act 2000 (PDA) (as amended).	Therefore, no likely significant in-combination effects are envisaged.

The area surrounding the proposed development is also heavily populated with a mixture of residential estates, commercial/light industrial developments and roads. Wastewater is also discharged from other settlements (e.g., Blarney, Douglas, Ringaskiddy) and local industry. However, in the absence of any significant impact associated with this project no in-combination impacts on water quality have been identified. Similarly, no significant in-combination impacts in relation to noise and disturbance have 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 were reported:

- The proposed development at Old Whitechurch Road, Kilnap, Co. Cork, 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.

References

Cork City Development Plan 2022-2028 (Cork City Council 2021);

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

Environmental Protection Agency Ireland (http://www.epa.ie/) Accessed 19/02/24

EPA 2021. Cork City D0033-01 Wastewater Treatment Plant (WWTP) Annual Environmental Report 2020

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

Invasive species Ireland (http://invasivespeciesireland.com/) Accessed 19/02/24

National Biodiversity Data Centre (http://www.biodiversityireland.ie/) Accessed 19/02/24

National Parks and Wildlife Service website (www.npws.ie) Accessed 19/02/24

NPWS (2014a) Conservation Objectives: Cork Harbour SPA 004030. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2014b) Cork Harbour Special Protection Area (Site Code 4030) Conservation Objectives Supporting Document Version 1.

Svobodova Z, Lloyd R, Machova J, Vykusova B (1993): Water quality and fish health. EIFAC Technical Paper 54, Rome, FAO. 59 pp

Appendices

Appendix 1 Site synopses

Great Island Channel SAC (Site Code 001058) Site Synopsis

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, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algal species occur on the flats, especially Ulva lactua 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.

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 Poulnabibe 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, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algae species occur on the flats, especially Ulva lactua 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.

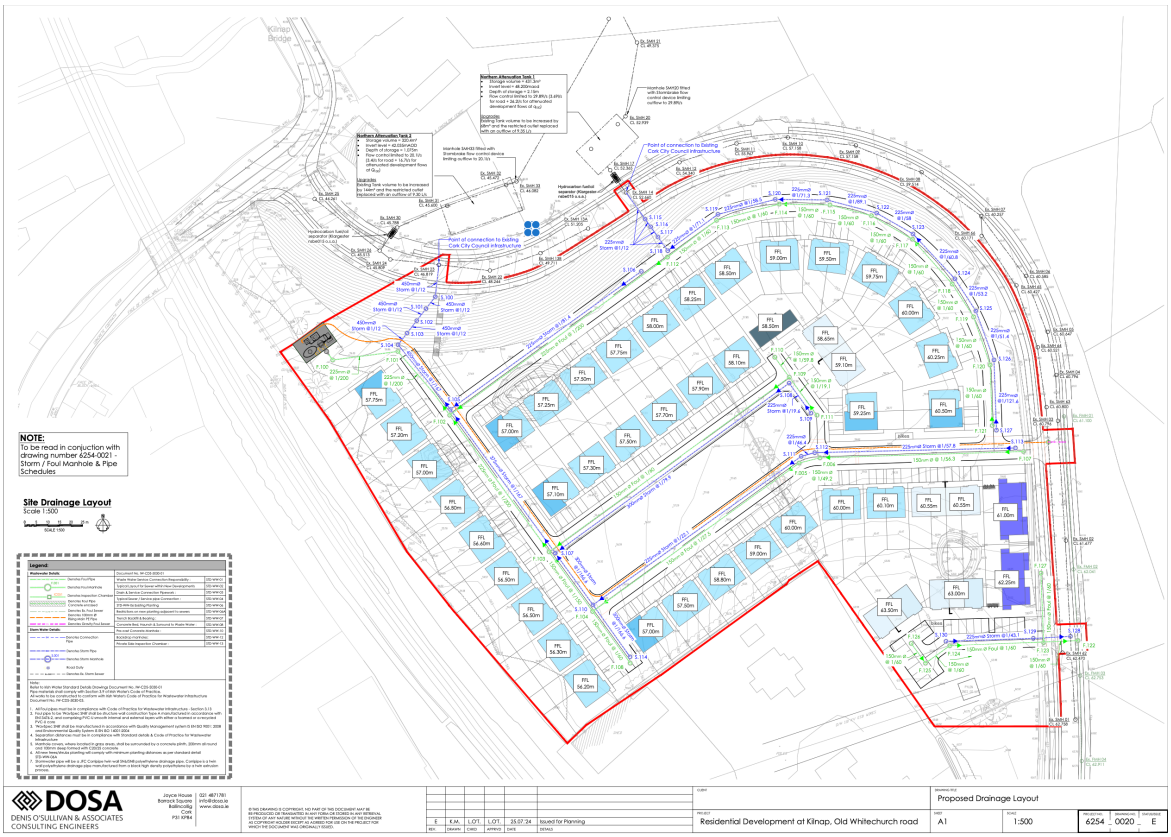
The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

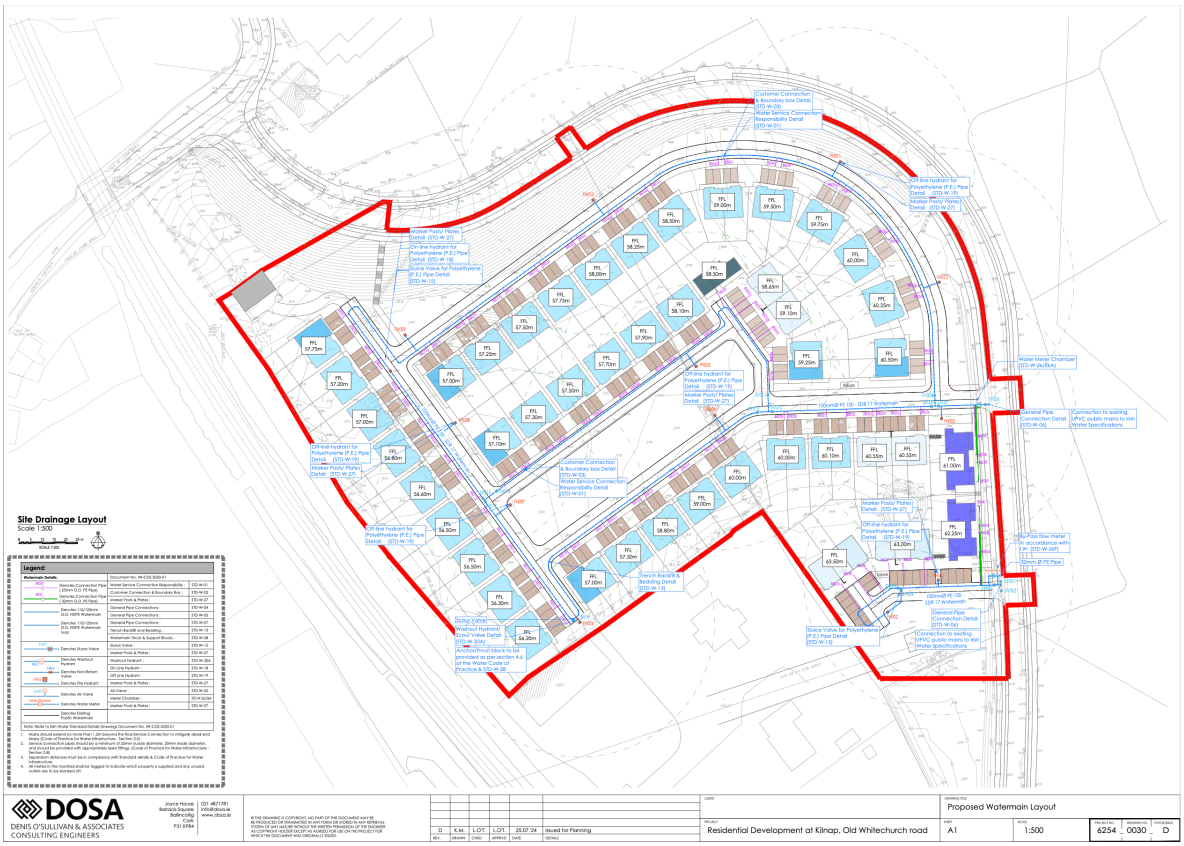
Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the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





Appendix 3. Irish Water Letter

UISCE ÉIREANN : IRISH WATER

CONFIRMATION OF FEASIBILITY

Uisce Éireann
Bosca OP448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office
Cork City.

www.water.ie

Stephen O'Grady
DOSA, Joyce House
Barrack Square
Ballincollig
Co. Cork
P31 KP84

11 November 2022

Our Ref: CDS22007050 Pre-Connection Enquiry
Kilnap, Old Whitechurch Road, Cork

Dear Stephen,

We have completed the review of the Pre-Connection Enquiry.

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 472 unit(s) at Kilnap, Old Whitechurch Road, Cork, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

• **Water Connection**	-	Feasible without infrastructure upgrade by Irish Water
• **Wastewater Connection**	-	Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Irish Water.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/