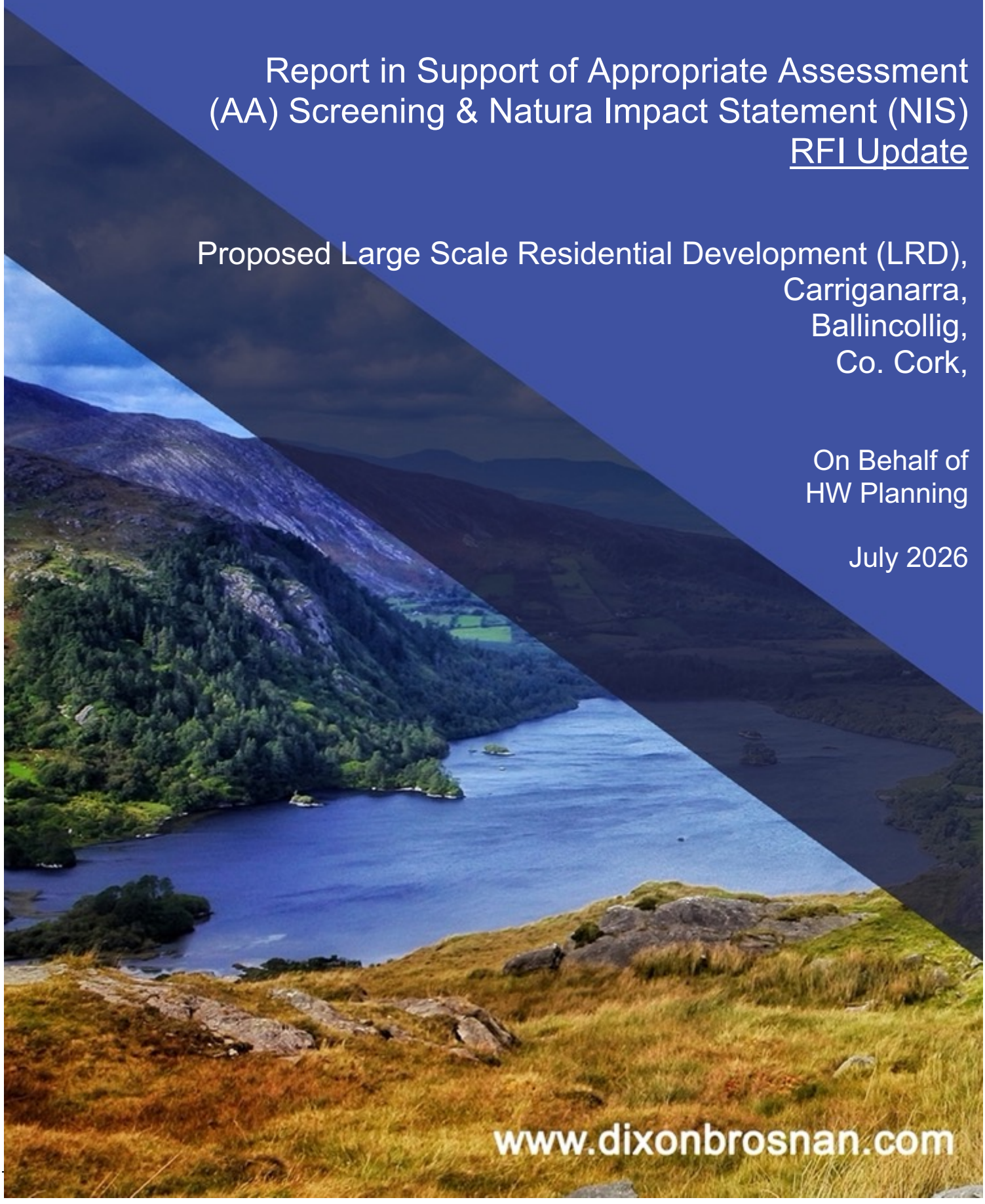
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# Report in Support of Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) RFI Update

Proposed Large Scale Residential Development (LRD),
Carriganarra,
Ballincollig,
Co. Cork,

On Behalf of
HW Planning

July 2026



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| Project | Report in Support of Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) for Proposed Large Scale Residential Development, Carriganarra, Ballincollig, Co. Cork | |
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| | | |

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

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

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# 1. Introduction

## 1.1 Background

The information in this report has been compiled by DixonBrosnan Environmental Consultants, on behalf of the applicant. It provides information on and assesses the potential for the Proposed Large Scale Residential Development (LRD) at Carriganarra, Ballincollig, Co. Cork, to impact on any Natura 2000 sites within its zone of influence.

Following submission of the planning application, the applicant received the following request for further information from Cork City Council (planning reference 26/44718).

*ITEM 1. The Planning Authority does not have enough information to fully assess the Appropriate Assessment (AA) or Environmental Impact Assessment (EIA) requirements. Please provide the following information:*

*Appropriate Assessment*
*The AA Screening and Natura Impact Statement shall be updated to include Great Island Channel SAC. In addition, the potential impacts of foul water management and flood risk shall be included in the assessment.*

*The following information is requested:*
*1. The AA Screening and Natura Impact Statement shall be updated to include Great Island Channel SAC. In addition, the potential impacts of foul water management, including the temporary pumping station, and flood risk, shall be included in the assessment along with any proposed mitigation.*

*2. Montbretia (low risk) and Sycamore (medium risk) shall be added to the invasive, alien plant species section in Section 4.9.3 of the report because these species were reported as per Appendix 8.2 of the EIAR. Mitigation measures to remove/manage such invasive species should be included in the assessment.*

*3. Foul water management, including the temporary pumping station, and flood risk, should be included within the impact assessment of the NIS in greater detail. There is a proposed temporary wastewater pumping station located within the flood zone. This aspect of the development shall be included within the impact assessment of the AA Screening/NIS and mitigated i.e. consider that this be relocated outside of flood zone.*

The information in this report forms part of and should be read in conjunction with the planning application documentation for the proposed development.

The Birds Directive (2009/147/EC) and the Habitats Directive (92/43/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). 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 the report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a Natura 2000 site. This report aims to inform the Appropriate Assessment process in determining whether the development, both alone and in combination with other plans or projects, are likely to have a significant impact on the Natura 2000 sites in the study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

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

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC (European Commission (EC), 2018);*
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission (EC), 2021);*
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, (EC) 2007);*
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision);*

- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10 (Department of Environment, Heritage and Local Government, 2010);*
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);*
- *Commission notice Guidance document on wind energy developments and EU nature legislation, (EC 2020);*
- *Communication from the Commission on the precautionary principle. European Commission (2000)*
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance (EC 2021) and*
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021).*

### 1.3 Authors of the Report

This chapter was prepared by Carl Dixon MSc (Ecological Monitoring) and Dr. Sorcha Sheehy PhD (Ecology/ornithology). Site surveys were completed by Carl Dixon, Sorcha Sheehy, Mark Donnelly BSc (Forestry), Sophie Knightley BSc (Wildlife Biology) and Tara Challoner MSc (Agriculture & Environmental Science /Ecological Assessment).

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Carl Dixon has considerable experience in bat survey and bat mitigation measures/roost design. Carl was the primary coordinator and surveyor for a heritage council-funded project serving all the river bridges in County Waterford for bats. He has designed bat roosts for Lesser horseshoe in conjunction with the NPWS for sites in West Cork. Carl has completed specialized training courses relating to bats in Ireland and the UK and has considerable experience in using a variety of bat survey equipment and subsequent software analysis of data.

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. 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.

Mark Donnelly (Forestry) holds a BSc. Hons in Forestry from Bangor University, Wales, and is a member of the Institute of Chartered Foresters. He worked as an arboricultural consultant for the National Trust in Wales for 22 years and was a lecturer in Forest Ecology at Bangor University. In Ireland, he has completed landscape assessments for a range of projects including wind farms, quarries, local authorities, housing developments, roads and pipelines.

Sophie Knightly is an ecologist with approximately four years' experience in ecological consultancy and environmental assessment in Ireland and the United Kingdom. She holds a BSc in Wildlife Biology from Munster Technological University and has developed experience across a range of ecological survey, assessment and reporting disciplines associated with forestry, infrastructure and land-use projects.

Sophie's work has primarily focused on ecological assessment within the forestry sector, including habitat surveys, breeding wader surveys, wintering bird surveys, Hen Harrier surveys and Badger surveys associated with afforestation and felling applications throughout Ireland. She has also worked extensively in the United Kingdom undertaking ecological clerk of works (ECoW) duties together with mammal, amphibian, reptile and ornithological surveys. Sophie has experience preparing Appropriate Assessments, Natura Impact Statements, ecological survey reports and biodiversity enhancement plans, with a strong practical background in ecological field survey and environmental assessment.

Tara Challoner is an Ecologist with over 14 years of experience. Tara holds a B.Sc. (Hons) in Agriculture & Environmental Science and an M.Sc. in Ecological Assessment. She has worked within a wide and varied scientific and policy roles across several organisations from the public sector to the private sector, NGOs, and sat on the Northern Upland Chain (NUC) High Nature Value farming panel and the NUC curlew action group. She has been a successful project manager for habitat and species conservation projects encompassing wetland habitats and species. Tara has experience in conducting multidisciplinary ecological surveys for a range of habitat and species, the preparation and review of Ecological Impact Assessment reports, and Stage 1 and Stage 2 Appropriate Assessment reports.

# 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 2011 as amended).

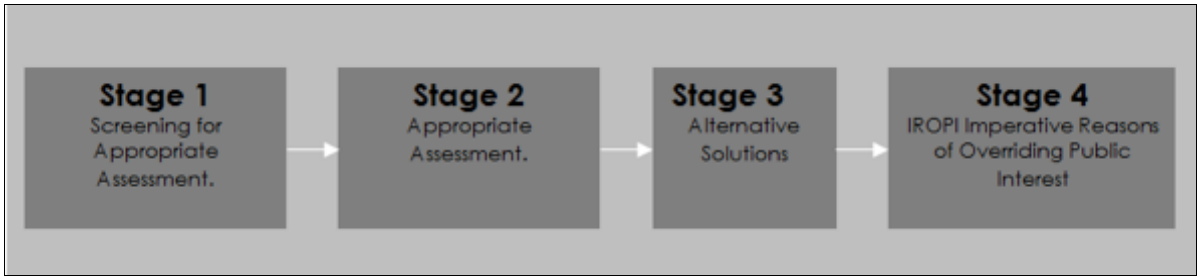
Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate 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, 2015);




The stages are as follows:

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

Stage Two: Appropriate assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives.

Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

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

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

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

# 3. Receiving Environment

## 3.1 Existing site

The proposed development is located on the southern side of Ballincollig town approximately 8km southwest of Cork City (**Figure 1**). The Ballincollig Link Road is located c.375m north of the site and the National route N22 is located approximately 375m east of the site. The existing Limeworth and Heathfield estate which is currently under construction run along the site's northern edge. Lands to the south, east and west are largely agricultural.

The topography of the site gently slopes from the north to a low point on the south-eastern boundary which is approximately +15.87m AOD. The elevation height along the perimeter from the north, west and southern side varies from +22.21m to +15.87m AOD. The Maglin North River runs along the western boundary of the site.

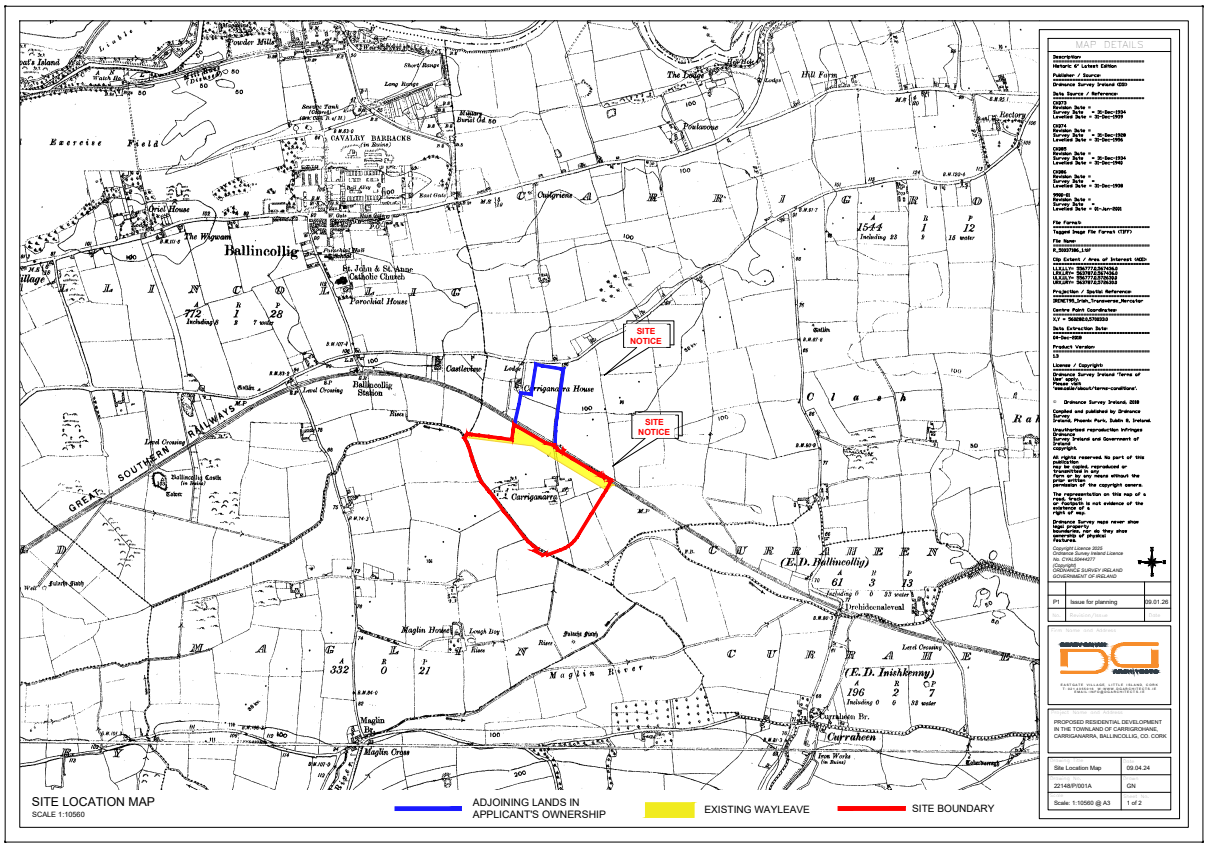



**Figure 1. Proposed development site location | DG Architects**




**Figure 2. Proposed Site Layout | Source DG Architects**

## 3.2 Proposed Development

The development will consist of the demolition of existing agricultural building and the construction of a residential development of 300 no. residential units consisting of 128 no. dwellings houses, 172 no. apartment/duplex units, a two storey creche facility and all ancillary site development works. The proposed 128 no. dwelling houses will include 42 no. bedroom detached/semi-detached dwelling houses and 84 no. 3 bedroom semi-detached/townhouse dwelling houses. The proposed development also provides for the restoration of an existing vernacular farm building on site which will accommodate 2 no. 2 bedroom semi-detached units.

The proposed 172 no. apartment/duplex units will include 18 no. 3 bedroom units, 109 no. 2 bedroom units and 45 no. 1 bedroom units, to be provided in 20 no. apartment/duplex buildings ranging in height from 3-4 storeys over basement level.

Vehicular access to the proposed development will be provided via the existing junction from the Killumney road serving the Heathfield residential development and existing sections of the Maglin Sustainable Access Corridor to the north. The proposed development provides for the extension of Maglin Sustainable Access Corridor and the provision of 4 no. pedestrian/cycle connections to the Heathfield residential development to the north which is under construction.

Ancillary site works include the raising of existing ground levels on site, the provision of bicycle parking and bin storage facilities serving the proposed apartment/duplex and creche buildings, the delivery of active travel infrastructure, landscaping and servicing proposals including a

temporary pumping station, and the undergrounding/diversion of an existing 38KV overhead ESB line which traverses the site. The proposed development also provides for a bridge crossing of the Maglin North stream to the south of the site.

An overview of the proposed development is shown in **Figure 2**. Site drawings are included in **Appendix 2.**

### 3.3 Surface Water Drainage

The existing topography produces one catchment area. Groundwater flow direction is interpreted to be from the north to a low point on the south-eastern boundary. Discharge from the site will be along the western boundary to the existing Maglin North watercourse.

In order to reduce the effects of the surface runoff on potential flooding, a Stormwater Management Plan will be applied to surface water discharges into adjacent watercourses. The Stormwater Management Plan can be applied to control the rate of runoff from new development. The maximum permitted surface water outflow from the new development is to be restricted to less than that of the existing greenfield site by the usage of attenuation storage. Control of runoff by attenuation methods requires a hydraulic control to restrict the magnitude of flows passing downstream, together with an upstream storage capacity to contain the volume of runoff held back by the hydraulic control. The flows are proposed to be attenuated in the surface water system by adopting a flood storage attenuation tank along with restricted outlets as the control devise. The storage volume required has been designed using the computer aided design package Windes 10.4.

Storm water from the proposed development shall discharge via two outfalls (one for the development and one for the section of the distributor road) into the existing watercourse ‘Maglin North’ both located to the south-western boundary of the site via hydro brake manholes, which will limit the amount of water discharging to the network. The amount of water discharged from the hydro brake manholes will be determined by using the allowable Greenfield Runoff rates for the developable area of the site. It is to be noted that all on site storm water storage facilities have been sized to cater for all storm water generated within the site boundary of the development. The discharges will be onto two areas of stone riprap setback approximately 10m from the watercourse. This will dissipate energy and avoid bank erosion / scouring in the streambed

The stormwater management plan adopted for the particular development involves using interlinked attenuation tanks located in the green areas of the site. All surface water runoff arising from the paved development will be drained away from the site. The attenuation tanks will be designed for a 100-year storm event. The maximum discharge from the tanks will be limited to calculated permissible runoff (QBAR) for the catchment area. Attenuation Tank Sizes and Petrol Interceptor Sizing/Specifications have been included as part of the Stormwater Network Design in this report. The nature-based SuDS principles proposed will have a positive impact from a sustainable impact.

A contingency has been built in by providing SuDS measures and not including their volumetric benefits in the attenuation calculations, namely

- Filter drains along public paths

- Raingarden/Bioretention Tree Pits along access road and greens areas within the development
- Tree-pit infiltration and storage
- Infiltration basins in public green areas/open spaces

It should be noted that climate change has been accounted for in the design. As per volume 5 of the GDSDS a factor of 20% has been incorporated into the design.

For the main site the allowable runoff utilising a Q1 of 21.8 l/second for the catchment area of 7.751 hectares equates to an allowable runoff of 2.81 l/second/hectare.

The allowable runoff for the section of the distributor road utilizing a Q1 of 2.9 l/second for the catchment of the road area of 1.033 hectares equates to an allowable runoff of 2.81l/second/hectare.

Surface water drawings are included in **Appendix 2** of this report.

### 3.4 Foul Drainage

A Pre-Connection Enquiry was submitted to Uisce Eireann. The Uisce Eireann Reference Number for this enquiry is CDS25007329. The response to this Enquiry was issued by Uisce Eireann on 21st October 2025. This confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Uisce Eireann network could be facilitated. The Statement of Design Acceptance as received from Uisce Éireann is included in Appendix 3 of this report.

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*

300 No. Dwellings

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 = (300) (446) / (24) (60) (60) = 1.548 litres/second

6DWF = 9.288 litres/secondCrèche

24 No Staff & 182 No. Children

From the EPA Code of Practice for Small Communities, Business, Leisure Centres and Hotels

Loading = 60 L/Person/day

Loading = (152) (60) / (24) (60) (60) = 0.106 litres/second

6DWF =0.630 litres/second

The overall quantity of wastewater for the proposed development is estimated at 146.0 m³ per day. This is based on the unit schedule submitted by the architect. The foul waste within the development will be collected via an internal network and will discharge to the public foul sewer.

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

The foul water network model was built and analysed using the Micro-drainage Software application and was assessed to ensure velocities maintained a self-cleansing velocity. The system will consist of an internal gravity network discharging to the existing Uisce Eireann asset via a pumping station and rising main.

Foul water drawings are included in **Appendix 2** of this report.

# 4. Stage 1 - Screening for Appropriate Assessment

## 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 significant effects 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 Zone of influence

The Zone of Influence (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 zone of influence, 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. It is noted that mitigation measures are not taken into account in the AA screening assessment process.

### 4.3 Field Study

Field surveys were carried out at the proposed development site between January 2024 to February 2026. Following the request for further information, additional site surveys were completed in July 2026. Surveys relevant to this appropriate assessment are described below. These surveys included an assessment of 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. Additional surveys for volant and non-volant mammals, invasive species and floral surveys were also completed. As these are not QI/SCI species, the details of these surveys are not relevant to this appropriate assessment. Details of these other surveys are included in the Environmental Impact Assessment Report (EIAR), which accompanies this planning application.

#### 4.3.1 Habitat/invasive species

Habitats were mapped according to the classification scheme outlined in the Heritage Council publication *A Guide to Habitats in Ireland* (Fossitt 2000) and following the guidelines contained in *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). Habitats were cross referenced with Habitats Directive Annex I habitats. Surveys were completed on the 14th May 2024, 22nd August 2024, 11th September 2025, 17th December 2025, 30th January 2026 and 3rd of July 2026. During these surveys, the site was also surveyed for invasive species and rare floral species (Wyse *et al*., 2016; Stace 2019). It is noted that a considerable number of site visits were carried during the overall assessment process

including winter bird surveys, bat surveys and breeding birds. Observations in relation to habitats made during these site visits are included in the habitat descriptions where relevant.

### 4.3.2 Breeding birds

The breeding bird survey was carried out on 14th May 2024 and 16th June 2024. Following the request for further information, additional bird surveys were completed on the 1st and 3rd of July 2026. Surveys were based on the BTO Common Bird Census (CBC) methodology (Bibby *et al.,* 2000 and Gilbert , 1998) which aims to capture a snapshot of breeding bird activity within the study area.

The study area focused on terrestrial habitats within the proposed development site. The aim of the breeding bird surveys was to identify any valuable bird habitats within the site boundary and to identify birds present within the proposed development site and surrounding landscape. This survey area encompassed terrestrial habitats along the survey route including hedgerows, treelines and agricultural fields.

During breeding bird surveys the site was walked so that all habitats within 50m of potential nesting features were surveyed. The ornithological surveyor slowly walked through the Site, stopping at regular intervals to scan with binoculars and to listen for bird calls or song. Birds were identified by sight and song, and observations were plotted on a map. Survey visits were made in the early morning to coincide with the peak period of bird activity and all species seen or heard in the study area and immediate environs were recorded including those in flight. Visits were made during favourable weather conditions.

All species encountered during the survey were mapped and coded using standard BTO species codes and activity recorded using the BTO status codes for breeding evidence. In an effort to minimise potential disturbance, no attempts were made to locate nests as such behaviours are generally sufficient to determine probable or confirmed breeding.

### 4.3.3 Wintering Birds

Winter bird surveys were carried out on the 29th January 2024, 12th February 2024, 27th February 2024, 22nd January 2025, 7th February 2025, 27th February 2025, 27th October 2025, 3rd November 2025 and 12th December 2025. These surveys focused on grassland habitats within the proposed development site as well as grassland habitats on the boundary of the site which could provide potential foraging or roosting habitats for wintering waterbirds and waders.

The survey methodology was based on that used by the British Trust for Ornithology (BTO), Wetland Bird Survey (WeBS) and also that for the Irish Wetland Bird Survey (I-WeBS), as outlined in Gilbert *et al.* (1998). The winter bird survey was undertaken using 8.5×45 binoculars and a Hawke Endurance Ed Spotting Scope 15-45×60 spotting scope, using a combination of transect and vantage point counts.

### 4.3.4 Aquatic Survey

Aquatic surveys were undertaken on the 25th September 2025, 26th January 2026 and 5th February 2026. Biological sampling was carried out at each station using the kick-sampling technique as per Environmental Protection Authority (EPA) methodology (Feeley et al., 2020).

This biotic index is used by the EPA and allows river quality to be compared under standardized guidelines.

The kick-sampling technique involved using a 'D' shaped hand net (mesh size 0.5 mm; 350 mm diameter). Sweeps through the sediment and deep sediment was carried out. The substrate immediately upstream of the net was kicked for two minutes to dislodge invertebrates. Stone washings were not carried out as there was no suitable substrate within the survey area. Samples are transferred to plastic containers and preserved using 70% alcohol. Samples are subsequently sieved and sorted using a white sorting tray. Identification was undertaken in the laboratory using a high-powered binocular microscope and using standard identification keys.

It is noted that the Maglin North is generally considered as unsuitable for biological monitoring using EPA methodology as it is a depositing watercourse i.e. deep fine sediment, minimal flows with an absence of riffle habitat and dense detritus which clogs the channel. An assessment was also made of the fisheries value of the watercourse and macrophytes were recorded.

### 4.4 Source-Pathway-Receptor Model

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

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives.
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor.
- 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 development, where LSE pathways to European sites were identified through the source-pathway-receptor model. It is noted that the precautionary principle has been applied for the purposes of screening to ensure that consideration and pre-emptive action is undertaken where there is a lack of scientific evidence. It is noted that mitigation measures are not taken into account in the AA screening assessment process.

### 4.6 Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the likely zone of impact for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the likely zone of impact of the proposed works;
- Identification of the most up-to-date QIs and SCIs for each European site within the likely zone of impact;
- Identification of the environmental conditions that maintain the QIs/SCIs at the desired target of Favourable Conservation Status;
- Identification of the threats/impacts – actual or potential that could negatively impact the environmental conditions of the QIs/SCIs within the European sites;
- Highlighting the activities of the proposed works that could give rise to significant negative impacts; and
- Identification of other plans or projects, for which in-combination impacts would likely have significant effects.

### 4.7 Desktop Review

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to 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 Ballincollig 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
- EPA Catchments Data https://www.catchments.ie

- 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
- Cork City Heritage and Biodiversity Plan (2021-2026) and
- Cork City Development Plan 2022-2028 (Cork City Council 2022).

## 4.8 European sites

### 4.8.1 European Sites within Zone of Influence

Special Areas of Conservation (SACs) and candidate SACs (cSACs) are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 or European sites.

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 sites that can be potentially affected by the proposed project has been compiled. The proposed development does not overlap with any European site. European sites within the likely zone of impact of the proposed development site are listed in **Table 1** and illustrated in **Figure 3**.

Cork Harbour SPA is located 9.8km east of the proposed development site. The Maglin North stream (EPA name Grange Hill; River waterbody code IE_SW_19C120740), a tributary of Curraheen Stream, runs along the western boundary of the proposed development site. The surface water catchments and drainage networks are shown on **Figure 4**. The Maglin North Stream meets the Curraheen Stream c.1.5km downstream of the proposed development site. The Curraheen Stream meets the Lee Estuary c.9.9km downstream of this confluence. The Lee Estuary forms part of the Cork Harbour SPA c.4.1km downstream of this point.

During operation, the proposed surface water drainage network will discharge to the Maglin North stream. Cork Harbour SPA is located c.15.5km downstream of the proposed Carriganarra LRD discharge point. Great Island Channel SAC is hydrologically connected to Cork Harbour and is located c.20.2km downstream of the proposed development site. Therefore surface water run-off/discharges during the construction or operational phases could potentially impact on water quality within the Cork Harbour SPA and Great Island Channel SAC via the Maglin North Stream.

Wastewater from the site will ultimately discharge into River Lee via the Ballincollig Wastewater treatment plant (WWTP) approximately 14.6km upstream of Cork Harbour SPA and 19.3km upstream of Great Island Channel SAC. This could potentially impact on water quality within the Cork Harbour SPA and Great Island Channel SAC.

Therefore, surface water run-off during the construction or discharges during the operational phases as well as wastewater discharges from the proposed development could potentially impact on Cork Harbour SPA and Great Island Channel SAC via the Maglin North Stream and River Lee. Habitats within or near the proposed development area could also potentially provide *ex-situ* foraging grounds for SCI species outside the Cork Harbour SPA.

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

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

**Table 1. European sites within the zone of influence of the proposed development site**

| European sites name and code | Distance from site boundary (at closest point) and potential source-pathway-receptor link | Qualifying interests (QI)/ Special Conservation Interests (SCI) |
|---|---|---|
| **Special Protection Area (SPA)** | | |
| Cork Harbour SPA<br><br>(site code 004030) | 9.8km (15.5km downstream).<br><br>Cork Harbour SPA is located 9.8km east of the proposed development site. The Maglin North stream (EPA name Grange Hill; River waterbody code IE_SW_19C120740), a tributary of Curraheen Stream, runs along the western boundary of the proposed development site. The surface water catchments and drainage networks are shown on Figure 4. The Maglin North Stream meets the Curraheen Stream c.1.5km downstream of the proposed development site. The Curraheen Stream meets the Lee Estuary c.9.9km downstream of this confluence. The Lee Estuary forms part of the Cork Harbour SPA c.4.1km downstream of this point.<br><br>During operation, the proposed surface water drainage network will discharge to the Maglin North stream. Cork Harbour SPA is located 15.5km downstream of the proposed Carriganarra LRD discharge point. Therefore surface water run-off/discharges during the construction or operational phases could potentially impact on water quality within the Cork Harbour SPA via the Maglin North Stream.<br><br>Wastewater from the site will ultimately discharge into River Lee via the Ballincollig Wastewater treatment plant (WWTP) approximately 14.6km upstream of Cork Harbour SPA. This could potentially impact on water quality within the Cork Harbour SPA.<br><br>Surface water run-off/discharges during the construction or operational phases as well as wastewater discharges from the proposed development could potentially impact on Cork Harbour SPA via the Maglin North stream. Habitats within or near the proposed development area could also potentially provide ex-situ foraging grounds for SCI species outside the Cork Harbour SPA. | Birds<br><br>A193 Common Tern (*Sterna hirundo*)<br><br>A028 Grey Heron (*Ardea cinerea*)<br><br>A130 Oystercatcher (*Haematopus ostralegus*)<br><br>A140 Golden Plover (*Pluvialis apricaria*)<br><br>A157 Bar-tailed Godwit (*Limosa lapponica*)<br><br>A056 Shoveler (*Anas clypeata*)<br><br>A156 Black-tailed Godwit (*Limosa limosa*)<br><br>A052 Teal (*Anas crecca)*<br><br>A183 Lesser Black-backed Gull (*Larus fuscus)*<br><br>A054 Pintail (*Anas acuta*)<br><br>A149 Dunlin (*Calidris alpina*)<br><br>A017 Cormorant (*Phalacrocorax carbo*)<br><br>A162 Redshank (*Tringa totanus*)<br><br>A004 Little Grebe (*Tachybaptus ruficollis*)<br><br>A050 Wigeon (*Anas penelope*)<br><br>A160 Curlew (*Numenius arquata*) |

| European sites name and code | Distance from site boundary (at closest point) and potential source-pathway-receptor link | Qualifying interests (QI)/ Special Conservation Interests (SCI) |
|---|---|---|
| | | A005 Great Crested Grebe (*Podiceps cristatus*)<br><br>A069 Red-breasted Merganser (*Mergus serrator*)<br><br>A048 Shelduck (*Tadorna tadorna*)<br><br>A142 Lapwing (*Vanellus vanellus*)<br><br>A179 Black-headed Gull (*Chroicocephalus ridibundus*)<br><br>A182 Common Gull (*Larus canus*)<br><br>A141 Grey Plover (*Pluvialis squatarol*a)<br><br>Habitats<br><br>Wetlands |
| | | |
| Great Island Channel SAC (site code 001058) | 16.5 km east (20.2km downstream).<br><br>Great Island Channel SAC is located 16.5km east of the proposed development site. The Maglin North stream (EPA name Grange Hill; River waterbody code IE_SW_19C120740), a tributary of Curraheen Stream, runs along the western boundary of the proposed development site. The surface water catchments and drainage networks are shown on **Figure 4**. The Maglin North Stream meets the Curraheen Stream c.1.5km downstream of the proposed development site. The Curraheen Stream meets the Lee Estuary c.9.9km downstream of this confluence. Great Island Channel SAC is located c.8.7km downstream of this point.<br><br>During operation, the proposed surface water drainage network will discharge to the Maglin North stream. Great Island Channel SAC is located 20.2km downstream of the proposed Carriganarra LRD discharge point. Therefore surface water run-off/discharges during the construction or operational phases could potentially impact on water quality within the Great Island Channel SAC via the Maglin North Stream. | 1140 Mudflats and sandflats not covered by seawater at low tide<br>1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) |

| European sites name and code | Distance from site boundary (at closest point) and potential source-pathway-receptor link | Qualifying interests (QI)/ Special Conservation Interests (SCI) |
|---|---|---|
| | Wastewater from the site will ultimately discharge into River Lee via the Ballincollig Wastewater treatment plant (WWTP) approximately 19.3km upstream of Great Island Channel SAC. This could potentially impact on water quality within the Great Island Channel SAC.<br><br>Surface water run-off/discharges during the construction or operational phases as well as wastewater discharges from the proposed development could potentially impact on Great Island Channel SAC via the Maglin North stream. | |

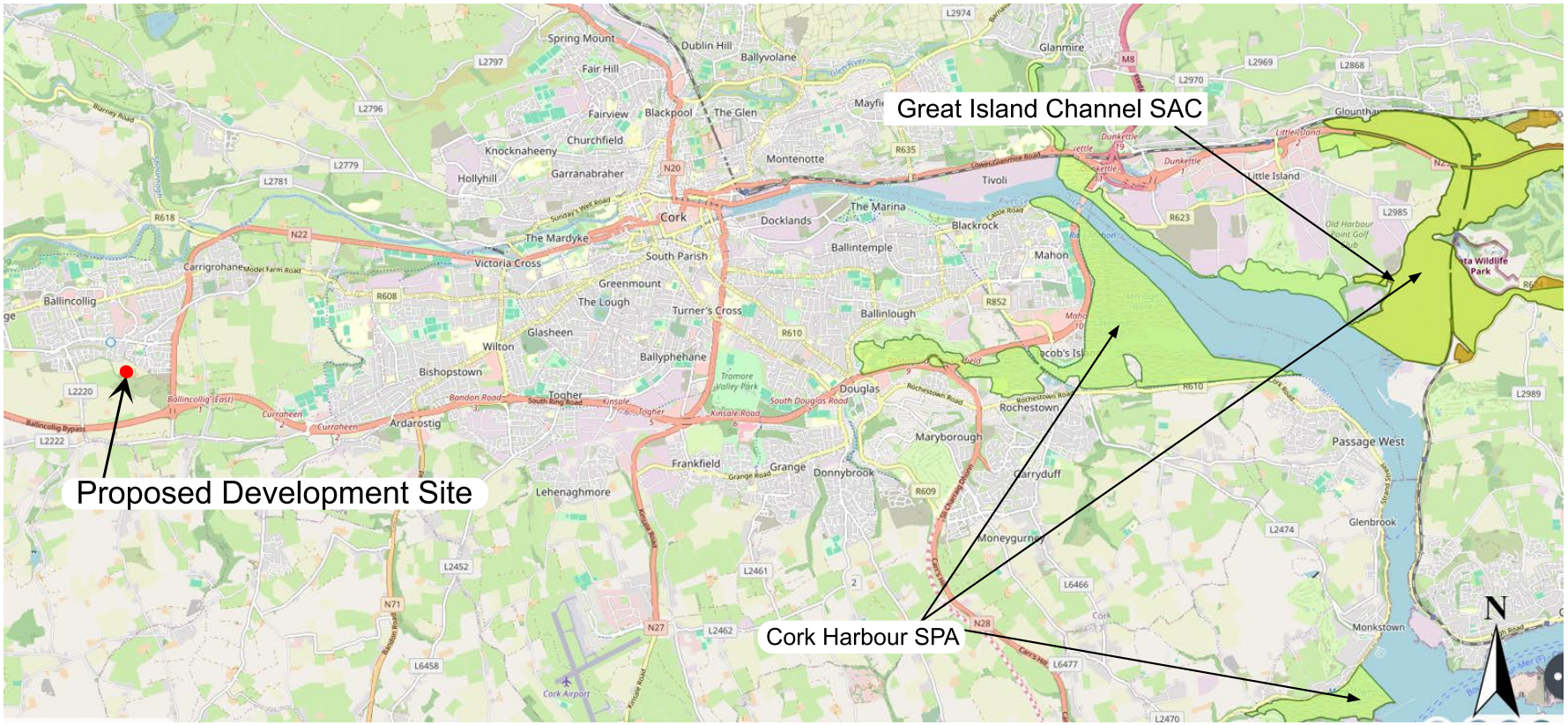



**Figure 3. European sites within likely zone of impact of proposed development site | Source EPA Envision mapping | Not to scale**

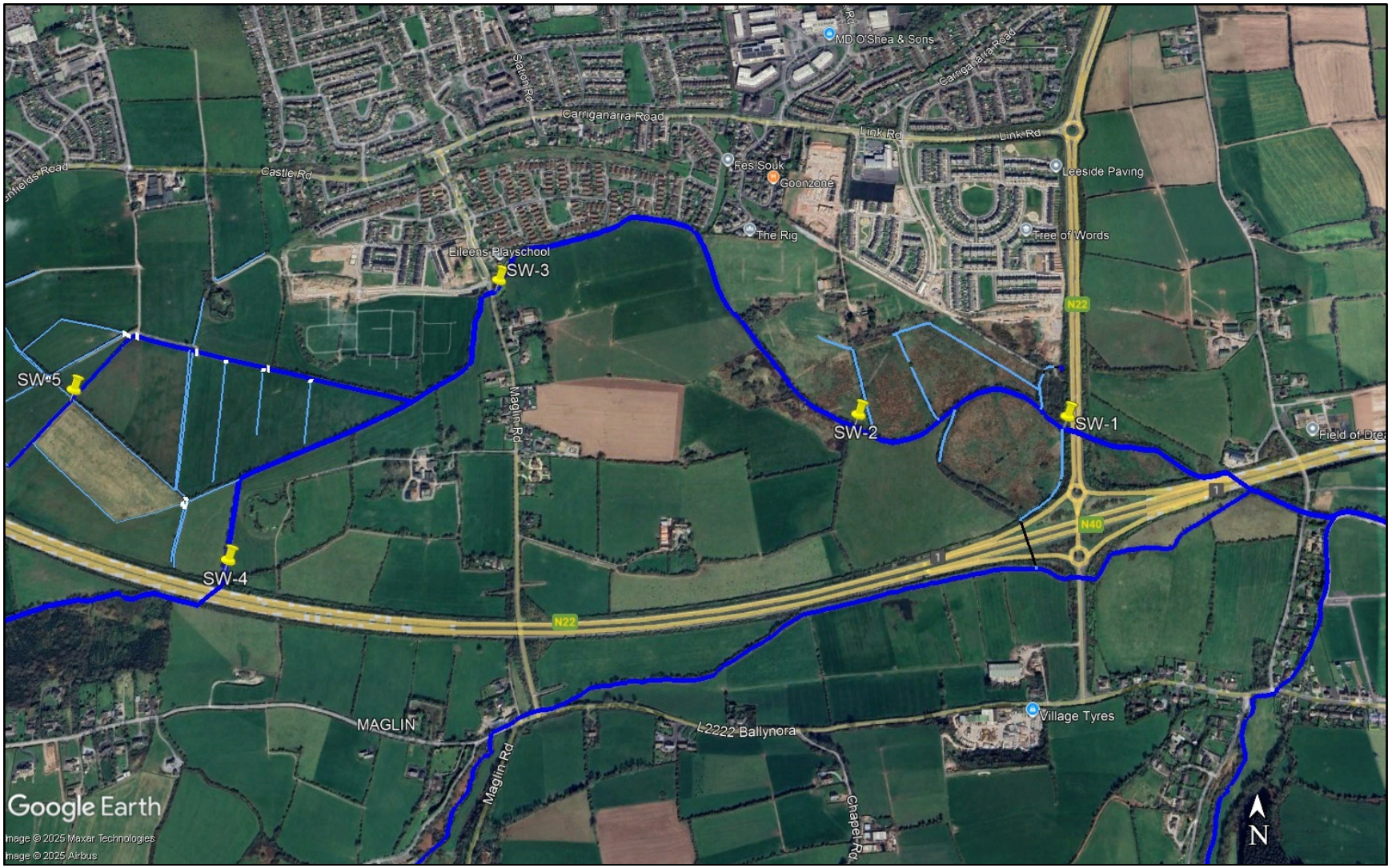



**Figure 4. Surface water features and water sampling locations (CF with section 4.10.3)**

### 4.8.2 Cork Harbour SPA (site code 004030) Site Synopses

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.

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 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 (NPWS 2014).

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

### 4.8.3 Great Island Channel SAC (site code 001058)

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

### 4.8.4 European sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as ‘qualifying interests’ and are listed in the Natura 2000 forms which are lodged with the EU Commission by each

Member State. A 'qualifying interest (QI)' (or 'special conservation interest (SCI)' in the case of SPAs) is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The conservation objectives for the Great Island Channel SAC are detailed in:

- NPWS (2014) *Conservation Objectives: Great Island Channel SAC 001058. Version 1.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

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

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

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

The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable. The species and habitats listed as 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 |

| Species code | Species | | Conservation objective |
|---|---|---|---|
| **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 |
| **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.

### 4.9 Baseline Data

The ecological baseline for the proposed development site was based on a desktop review and direct surveys of the proposed development site and areas proximate to same. This focused on habitats and species that are listed as Qualifying Interests (QI) (in the case of SACs) and Special Conservation Interests (SCI) (in the case of SPAs) in the designations for the European sites. Surveys for habitats, mammals, birds and invasive species were undertaken within the study area.

#### 4.9.1 Habitats

Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the proposed development site 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.

An overview of habitats recorded within the site is shown in **Figure 5** and the habitats recorded on site are described in **Table 4**. Photographs of the site are also included below.

**Table 4. Habitats recorded within the proposed development site boundary and their ecological value**

| Habitats | Comments |
|---|---|
| Improved agricultural grassland GA1 | All of the grassland within the proposed development site has been improved in the past. However, these are extensively managed with lower intensively grazing and fertiliser input than typical intensively farmed lands.<br><br>This habitat is dominated by typical grass species including Perennial ryegrass, Meadow grass and Common bent. Herbaceous species include Curled dock, Ribwort plantain, Dandelion, Creeping buttercup and Sorrell.<br><br><br><br>Plate 1. Improved agricultural grassland at northeast of the site |
| Improved agricultural grassland GA1/Dry calcareous and neutral grassland GS1 | This grassland is located on dryer areas at the north of the site. It has poor species diversity. Species present include Plantain, Red bartsia, Yarrow, Clovers, Poa sp., Timothy and Crested dogstail.<br><br>Calcareous grasslands with either high numbers or diversity of orchids correspond to the priority habitat, 'semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometea) (*important orchid sites) (6210)'.<br><br>The low diversity grassland within the proposed development site is not an Annex I habitat. |

| Habitats | Comments |
|---|---|
| | <br>Plate 2. Semi-natural grassland adjoining woodland/scrub habitat (looking south) |
| Improved agricultural grassland GA1/Wet grassland GS4 | Poorly drained agricultural grassland at the southeast of the site has allowed areas of Rush to develop.<br><br>This habitat has poor species diversity. Rushes dominate this habitat with Sharp flowered rush and Soft rush. Broadleaved herbaceous species include Marsh foxtail, Meadowsweet, Angelica and Creeping buttercup are also present.<br><br>Wet grassland has links with the Annex I: Wet grassland may contain examples of the annexed habitat, 'Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (6410)'.<br><br>The wet/agricultural grassland at the proposed development site has low diversity is not representative of Annex I habitat.<br><br><br>Plate 3. Wet/agricultural grassland mosaic |

| Habitats | Comments |
|---|---|
| Dry meadows and grassy verges GS2/Scrub WS1 | Semi-natural grassland has developed along the field boundaries where grazing has been reduced or prevented by electric fencing. This is developing into scrub (dominated by Bramble) in some areas. Cocksfoot and Sweet meadow grass are the dominant species as well as Hogweed, Nettle, Bush vetch, Knapweed and Great willowherb. Mullein was recorded in the vicinity of the Lime kiln.<br><br>Several areas of scrub have developed along hedgerows where field margins have been abandoned. This habitat is dominated by Blackthorn, Willow, Gorse and Bramble. Wild clematis and Buddleia were recorded around the farmyard. At the south-west of the site, near the woodland and stream, scrub is developing into immature woodland WS2. This habitat classification includes naturally regenerated Ash, Alder, Willow and Sycamore which has developed from scrub on the margins of field boundaries.<br><br>GS2 corresponds to the annexed habitat, 'lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) (6510)'. However, the grassland mosaic within the proposed development site is not an example of the is Annex I habitat.<br><br><br><br>Plate 4. Dry meadows and grassy verge along field boundary<br><br> |

| Habitats | Comments |
|---|---|
| | Plate 5. Dry meadows and grassy verge around farm house<br><br>Plate 6. Scrub/grassy verge adjoining woodland (and lime kiln) at west of site |
| Dry meadows and grassy verges GS2/ Recolonising bare ground ED3 | Around the farm buildings at the southeast of the site, an area of what appears to have been formerly bare earth/spoil has been recolonised by a mixture of dry meadows/grassy verge. Species recorded include Spear thistle, Creeping buttercup, Hogweed, Curled dock, Bramble, Cocksfoot, Herb Robert, Buddleia, and False oat grass<br><br>GS2 corresponds to the annexed habitat, 'lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) (6510)'. However, the grassland mosaic within the proposed development site is not an example of the is Annex I habitat.<br><br><br>Plate 7. Recolonising bare ground/dry meadows developing around the southeast farm buildings. |
| Mixed broadleaved woodland WD1 | A small area of woodland is located adjacent to the lime kiln, to the east of the Maglin North Stream. This area, which was previously associated with a quarry facility, now |

| Habitats | Comments |
|---|---|
| | comprises of mature and semi-mature Ash, Sycamore, Beech, with low growing Alder, Hawthorn, Willow, Blackthorn and Elder. Ground flora included Ivy and Remote sedge.<br><br>Understorey species include Hart's tongue fern, Nettle, Bramble, Ground ivy, Soft shield fern, Remote sedge, Cleavers. Although this habitat adjoins the Maglin North Stream, there is no evidence of flooding of this habitat.<br><br>The remainder of the area has old Hawthorn scrub with some semi-mature trees scattered throughout. There are thickets of Elder and Bramble. However, there is no evidence that this area has been continuously wooded. A review of the historical mapping indicates some areas of trees along the access track are mature, as well as an area of woodland/scrub around the lime kiln (dating back to 1st edition 1829 to 1834). However, the 25" edition mapping (1987-1913) shows a smaller area of woodland/scrub alongside marginal grassland suggesting that this area had been largely cleared for the historical quarry operations onsite.<br><br>A review of flood extents (OPW) found that this woodland is located outside the flood extents of the Maglin North Stream. No evidence of regular flooding or permanent waterlogging which would be consistent with wet woodland (or riparian woodland) was recorded within this habitat. While Alder and Willow are present, this woodland lacks the characteristics of wet woodland (and alluvial woodland) habitat.<br><br><br><br>Plate 8. Woodland habitat at west of site |
| Hedgerows WL1/<br><br>Treelines WL2 | Planted Hawthorn hedgerows in the vicinity of the farmyard and field boundaries, have become colonised with other species including Blackthorn and Willow. Larger tree species have also established including Ash, Sycamore and Alder, where they have developed into treelines. Hedgerows are largely along earth banks with old stone wall in some areas . Ivy is in the understorey common as well as Cow parsley. Note that an assessment of the hedgerows/treelines based on the Heritage Council Appraisal System (Foulkes) is included in the GeoTree Arboricultural assessment (Tree Report). With the exception of the mature treeline along the entrance track (H1 and H2), the hedgerow and treelines within the site are not mature, although they are locally valuable. A review of the historical mapping indicates some areas of trees along the access track are mature (H1 and H2) (dating back to 1st edition 1829 to 1834). A number of the hedgerows/treelines at the west of the site (along the Maglin North stream) and at the south of the site are visible on the 1st edition mapping, indicating that these are mature habitats. |

| Habitats | Comments |
|---|---|
| | Treelines run along both sides of the access road (H1 and H2 in arboricultural assessment). This is patchy with several mature and semi-mature trees including one large mature Ash as well as mature Hawthorn, Elder and Semi-mature Ash. Local importance (Higher value)<br><br>Lower growing hedgerows, with occasional mature trees, run along the north-western boundary of the site (H3, H4, H6). These are dominated by Hawthorn and Blackthorn with occasional Ash. These have developed over an old stone wall with limited understorey. Local importance (Higher value).<br><br>A short section of Griselinia hedgerow runs along the north-western boundary of the site (H5). This is a low value non-native hedgerow Local importance (Lower value).<br><br>Along the western boundary and adjoining stream, a treeline/hedgerow mosaic has developed along overgrown hedgerow which is dominated by Hawthorn (H6 and H7 in arboricultural assessment). Trees are generally low growing and dominated by mature Hawthorn, Blackthorn, Willow and Elder. The understorey is shaded and dominated by mixed ferns including Soft shield fern and Bracken. Local importance (Higher value)<br><br>Moving south along this treeline, with several mature and semi-mature Alder, as well as mature and semi-mature Sycamore, Willow, Ash and Elder (G7 and G8 in arboricultural assessment). Local importance (Higher value)<br><br>At the southeast of the site, adjoining the derelict farm buildings, a treeline runs east to west with mature Ash and Hawthorn (H12 and H13). This is gappy along its western extent, becoming more dense moving east. Areas of dead wood area also present where trees have fallen over. The understorey includes deadwood, Willow, immature Elm, Mixed ferns (Hart's tongue, Soft shield), Ivy, Herb Robert. Local importance (Higher value)<br><br>Mature Hawthorn and Blackthorn hedgerow runs along the centre of the site, south of the farm buildings (H9 and H10). This is a dense good quality native hedgerow. Understory species include Bramble and Yellow flag. It adjoins a drainage ditch which connects to the Maglin North. Local importance (Higher value)<br><br>A short section of patchy hedgerow is located at the centre of the site (H11). This is dominated by Hawthorn, with occasional dead trees. Local importance (Lower value) |

| Habitats | Comments |
| --- | --- |
| | <br>Plate 9. Central treeline along access road (H1/H2)<br><br><br>Plate 10. Treeline along Maglin stream (G7/G8) |

| Habitats | Comments |
| --- | --- |
| | <br>Plate 11. Short section of treeline at north-western corner of site (H6)<br><br><br>Plate 12. Treeline at south-east of site (H13) |

| Habitats | Comments |
|---|---|
| | <br>Plate 13. Hedgerow/treeline along southern drain (H10) |
| Mixed broadleaved woodland WD1/Scrub WS1 | An area at the southeast of the site has developed into a mosaic of the mature woodland and scrub (dominated by bramble). This habitat is of relatively recent origin. The trees, which are largely semi-mature and immature, include Hawthorn Willow and occasional mature Ash. Understorey species include Ivy, Creeping buttercup, Nettle, Hogweed and Elder. Areas of waterlogged ground have allowed Remote sedge to establish.<br><br>While Alder and Willow are present and seasonal waterlogging occurs, the habitat lacks the hydrological regime, floristic mix/structural complexity and flood dependency characteristic of Annex I alluvial woodland (91E0). The woodland is episodically waterlogged rather than flood-driven .<br><br><br>Plate 14. Area of woodland scrub at southeast of site |
| Recolonising bare ground ED3 | Includes areas around former farmyard where abandoned bare ground is developing into semi-natural grassland and low growing scrub. |

| Habitats | Comments |
|---|---|
| Stone walls and other stonework BL1/Buildings and artificial surfaces BL3 | Derelict farm buildings as well as the old lime kiln are included in this classification. The walls in some areas support Herb Robert, Ivy, Hart's tongue fern, Sow thistle.<br><br>The former farmyard and farm buildings are derelict and in an advanced state of disrepair. The farmhouse is located to the west of the access track and corresponds to a footprint shown on the 1841 OS. More modern buildings are located to the south of the old farmhouse. Older outbuildings (dating from c.1903) are located at the southeast of the site, alongside some sections of old stone wall (largely beneath trees). There is a partially intact lime kiln to the west of the farmyard on the edge of an area of woodland.<br><br>Tracks runs through the site providing access to farm buildings.<br><br><br><br>Plate 15. Derelict farm buildings at centre of the site<br><br><br><br>Plate 16. Derelict farm buildings and scrub at southeast |

| Habitats | Comments |
|---|---|
| | <br>Plate 17. Derelict farm buildings at centre of the site<br><br>Plate 18. Sections of old stone wall at southeast of site |
| Lowland depositing river (FW2) | The Maglin North Stream runs along the western boundary of the site. This stream is heavily channelised with a straightened channel, soft mud substrate and large volumes of woody detritus. Flow is generally laminar with no significant riffle glide sequences or deep pools. The high earth banks are lined, predominantly with Alder but Willow is also common. Shade levels are generally high, which suppresses macrophyte growth and as |

| Habitats | Comments |
|---|---|
| | a consequence there is no significant aquatic vegetation. Some Fools watercress is present where light levels are higher.<br><br>There is sufficient flow within this stream to support permanent fish populations. Species such as Stickleback and European eel likely to occur. Brown Trout is also likely to occur, although there is an absence of spawning gravels and high value nursery habitat.<br><br><br><br>Plate 19. Maglin North Stream along western boundary |
| Drainage ditch FW4 | There are a number of small land drains within the site. The most prominent drainage ditch is located at the south of the site. This drainage ditch runs south from the centre of the site meeting the Maglin North Stream just south of the site boundary. This drainage ditch is shaded and channelized with Blackthorn and Hawthorn along its length. Standing water and rush are present in some areas of the drain, which is likely to dry up during the summer months. The drain is heavily clogged with leaf litter.<br><br>A smaller drainage ditch is located at the southeast of the site. This is heavily overgrown with grasses and less distinct that the main drainage ditch.<br><br><br><br>Plate 20. Drainage ditch at south of site |

| Habitats | Comments |
| --- | --- |
| | <br>Plate 21. Smaller drainage ditch at south-east of site |

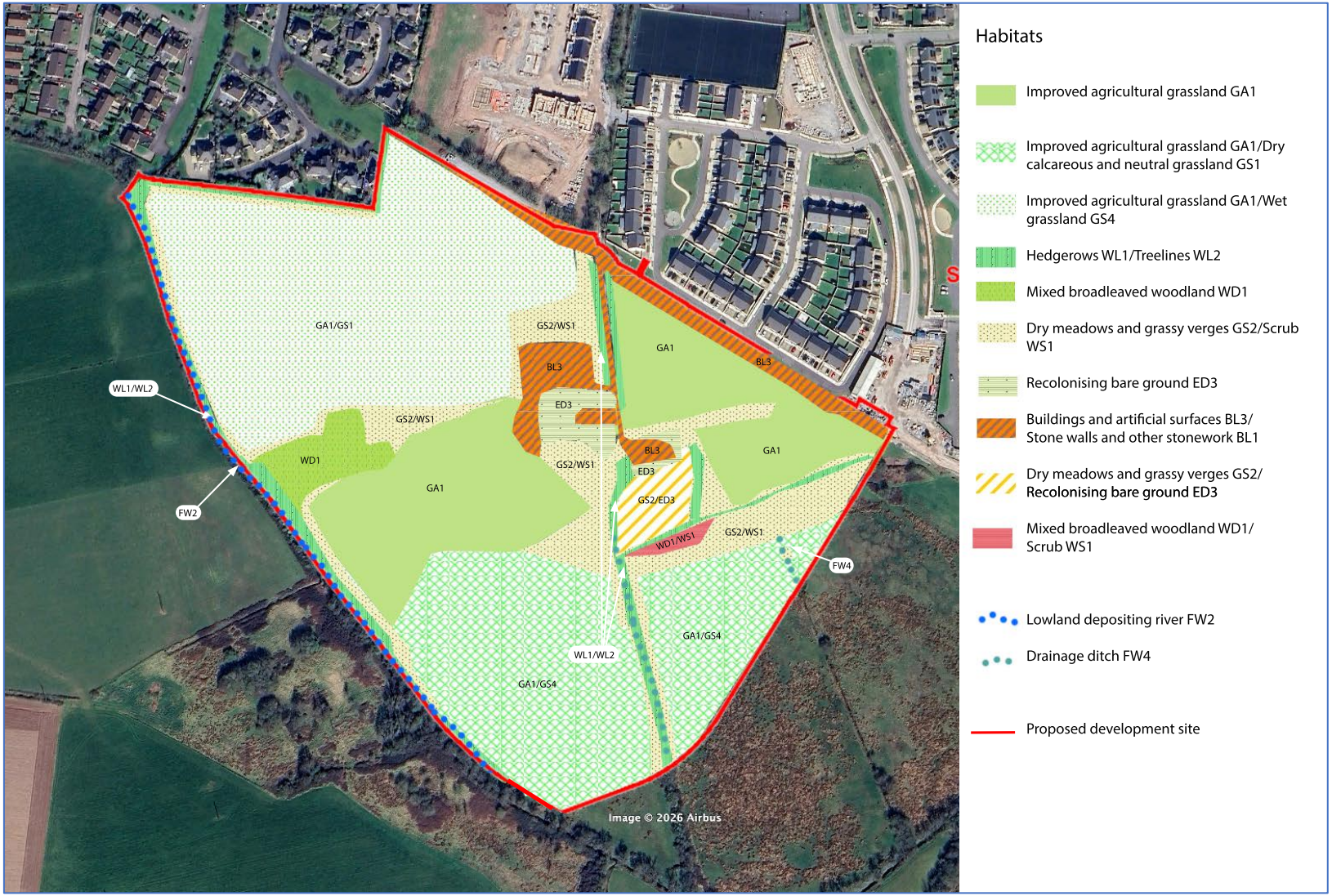



**Figure 5. Habitats recorded within proposed development site boundary**

### 4.9.2 Birds

#### Breeding birds

#### 2024 Surveys

The site of the proposed development lies within Ordnance Survey National Grid 10km square W66. The National Biodiversity Data Centre's (NBDC) online database provides data on the distribution of species within 10km grid squares.

The National Biodiversity Centre online data base lists 123 species of bird recorded within grid square W66. Of these 123 species, 12 of which are listed under Annex I of the Birds Directive, namely, Bar-tailed Godwit (*Limosa lapponica*), Chough (*Pyrrhocorax pyrrhocorax*), Golden Plover (*Pluvialis apricaria*), Hen Harrier (*Circus cyaneus*), Kingfisher (*Alcedo atthis*), Little Egret (*Egretta garzetta*), Mediterranean Gull (*Ichthyaetus melanocephalus*), Merlin (*Falco columbarius*), Nightjar (*Caprimulgus europaeus*), Peregrine (*Falco peregrinus*), Red Kite (*Milvus milvus*) and Ruff (*Calidris pugnax*). There is no suitable breeding habitat for these Annex I species within the proposed development site boundary.

Breeding bird surveys were carried out in May and June 2024 based on the Common Bird Census (CBC) methodology (Balmer *et al.* 2013 and Gilbert *et al.,* 1998). The results of the breeding bird survey are shown in **Table 5**.

**Table 5. Bird Species recorded during breeding bird surveys**

| Species | | Breeding Status | Highest evidence of breeding | Estimated number of territories | Conservation Status: Annex I of Birds Directive or Red/Amber List* |
|---|---|---|---|---|---|
| Blackbird | *Turdus merula* | Possible | Singing male | 3 | |
| Blackcap | *Sylvia atricapilla* | Probable | Pair observed | 2 | |
| Blue tit | *Cyanistes caeruleus* | Possible | Singing male | 2 | |
| Bullfinch | *Pyrrhula pyrrhula* | Probable | Pair observed | 1 | |
| Buzzard | *Buteo buteo* | Non-breeding | Flying over | | |
| Chaffinch | *Fringilla coelebs* | Possible | Singing male | 2 | |
| Chiffchaff | *Phylloscopus collybita* | Possible | Singing male | 2 | |
| Dunnock | *Prunella modularis* | Possible | Singing male | 2 | |
| Feral pigeon | *Columba livia domestica* | Non-breeding | Flying over | | |
| Goldfinch | *Carduelis carduelis* | Probable | Pair observed | 1 | |
| Great tit | *Parus major* | Possible | Singing male | 1 | |
| House martin | *Delichon urbicum* | Non-breeding | Flying over | | Amber List |
| House sparrow | *Passer domesticus* | Possible | Singing male | 1 | Amber List |
| Jackdaw | *Corvus monedula* | Probable | Pair observed | 1 | |
| Linnet | *Linaria cannabina* | Non-breeding | Overflying | | Amber List |

| Species | | Breeding Status | Highest evidence of breeding | Estimated number of territories | Conservation Status: Annex I of Birds Directive or Red/Amber List* |
|---|---|---|---|---|---|
| Magpie | *Pica pica* | Possible | Singing male | 1 | |
| Pheasant | *Phasianus colchicus* | Probable | Pair observed in suitable nesting habitat in breeding season | 1 | |
| Robin | *Erithacus rubecula* | Possible | Singing male | 1 | |
| Rook | *Corvus frugilegus* | Non-breeding | Flying over | NA | |
| Spotted flycatcher | *Musciapa striata* | | | | |
| Starling | *Sturnus vulgaris* | Non-breeding | Overflying | 1 | Amber List |
| Swallow | *Hirundo rustica* | Confirmed | Nesting within farm building | 1 | Amber list |
| Treecreeper | *Certhia familiaris* | Possible | Species observed in breeding season in suitable nesting Habitat | 1 | |
| Woodpigeon | *Columba palumbus* | Possible | Singing male | | |
| Wren | *Troglodytes troglodytes* | Possible | Singing male | 2 | |

No Annex I bird species were recorded during the site survey. A total of 25 species were recorded during the breeding bird surveys. The majority of birds recorded as considered common, woodland edge species which will nest in the mature treelines and hedgerow onsite. However, the mix of habitats onsite provides locally valuable habitats for a range of breeding birds. The proposed development site is dominated by grassland with patchy treelines/hedgerow. Native hedgerow provide valuable feeding/nesting resources for birds i.e. Hawthorn, Elder, Blackthorn, Willow. The grassland within the proposed development size is managed conventionally for cattle grazing. This is a low diversity habitat which does not provide significant resources for breeding birds. Although there is some ponded surface water on grassland and in scrub/woodland during peak rainfall events, these ephemeral habitats do not provide significant breeding resources for birds. There are also heavily channelised drains within the proposed development site boundary, but likewise they do not provide high value breeding resources for local bird populations.

Five species of conservation concern (Amber list) were recorded during the breeding birds surveys i.e. House martin *Delichon urbicum*, House sparrow *Passer domesticus*, Linnet *Linaria cannabina*, Starling *Sturnus vulgaris* and Swallow *Hirundo rustica*. A Swallow nest was recorded within one of the old farm buildings.

During the survey period, which extended between 2024 and 2026, the management of grassland varied between longer, unmanaged grassland and shorter, managed grassland.

However, with the exception of Pheasant, no grassland nesting species were recorded during the site survey.

### 2026 surveys

A total of 25 bird species were also recorded during the 2026 surveys, although the assemblages differed slightly (See Table 6). No Annex I species were recorded. Five Amber list species were recorded Goldcrest *Regulus regulus*, House Martin *Delichon urbicum*, House Sparrow *Passer domesticus*, Sand Martin *Riparia riparia* and Swallow *Hirundo rustica* as well as one Red List species, Meadow pipit *Anthus pratensis*, which was notably absent from the 2024 surveys.

A number of species recorded during the 2026 surveys were not recorded in 2024 i.e. Coal Tit *Periparus ater*, Goldcrest *Regulus regulus*, Hooded Crow *Corvus cornix*, Jay *Garrulus glandarius,* Meadow Pipit *Anthus pratensis*, Reed Bunting *Emberiza schoeniclus*, Sand Martin *Riparia riparia* and Stonechat *Saxicola rubicola.*

Other species present during 2024, not recorded during the 2026 surveys were Feral pigeon *Columba livia domestica*, Jackdaw *Corvus monedula* and Treecreeper *Certhia familiaris*, Linnet *Linaria cannabina*, Magpie *Pica pica*, Pheasant *Phasianus colchicus* and Spotted flycatcher *Musciapa striata*.

The difference in species recorded reflects the ‘snapshot’ nature of this type of field survey. However, both surveys supported a typical assemblage of birds associated with rank grassland, hedgerows, scrub, treelines, scattered mature trees and adjoining stream vegetation.

As with the 2024 surveys, most bird activity was concentrated along the field boundaries and areas of dense scrub, where species such as Wren, Blackbird, Robin, Dunnock, Blackcap, Chiffchaff, Blue Tit, Great Tit, Bullfinch, Song Thrush and Goldcrest were recorded. These habitats provide suitable nesting and foraging opportunities for common woodland-edge and hedgerow birds.

The rank grassland, particularly in the lower fields, was used extensively by feeding and overflying birds. Goldfinch was especially prominent, with large flocks recorded moving over and feeding within the grassland, reflecting the availability of seed-bearing plants. Swallows and Goldfinch were observed foraging in these areas. House Martins and probable Sand Martins were also recorded overflying or foraging above the site. Meadow Pipit and Stonechat were associated with the more open grassland and scrub mosaic, while Common Buzzard was recorded over the wider site.

The river and associated marginal vegetation provided additional habitat diversity. Reed Bunting was recorded along the river. No Kingfisher was recorded. The riparian corridor, together with adjoining scrub and hedgerows, is likely to function as both a breeding habitat and a commuting corridor for small passerines. Jay was recorded only off-site, indicating its presence in the surrounding landscape rather than confirmed use of the development site itself.

The derelict farm buildings contained old Swallow nests, demonstrating previous use of the structures for nesting. However, the nests were unoccupied during the survey, and part of the

roof had collapsed, potentially rendering at least one nest site unusable. Swallows continued to forage around the buildings and fields, but active breeding within the structures was not confirmed.

The bird species recorded are characteristic of a semi-natural farmland site on the urban fringe.

**Table 6. Bird Species recorded during breeding bird surveys 2026**

| Species | | Breeding Status | Highest evidence of breeding | Estimated number of territories | Conservation Status: Annex I of Birds Directive or Red/Amber List* |
|---|---|---|---|---|---|
| Blackbird | *Turdus merula* | Possible | Singing male | 2–3 | |
| Blackcap | *Sylvia atricapilla* | Possible | Singing male | 3 | |
| Blue Tit | *Cyanistes caeruleus* | Possible | Singing male | 3 | |
| Bullfinch | *Pyrrhula pyrrhula* | Possible | Singing male | 1 | |
| Buzzard | *Buteo buteo* | Non-breeding | Overflying | | |
| Chiffchaff | *Phylloscopus collybita* | Possible | Singing male | 3–4 | |
| **Coal Tit** | ***Periparus ater*** | Possible | Singing male | **0–1** | |
| Dunnock | *Prunella modularis* | Possible | Singing male | 1 | |
| **Goldcrest** | ***Regulus regulus*** | Possible | Singing male | **1–2** | Amber list |
| Goldfinch | *Carduelis carduelis* | Possible | Singing male | 1-3 | |
| Great Tit | *Parus major* | Possible | Singing male | 1–2 | |
| **Hooded Crow** | ***Corvus cornix*** | **Non-breeding** | **Overflying** | | |
| House Martin | *Delichon urbicum* | Non-breeding | Overflying | | Amber list |
| House Sparrow | *Passer domesticus* | Possible | Singing male | 1 | Amber list |
| **Jay** | ***Garrulus glandarius*** | **Non-breeding** | **Overflying** | | |
| **Meadow Pipit** | ***Anthus pratensis*** | **Possible** | **Singing male** | **1–2** | **Red list** |
| **Reed Bunting** | ***Emberiza schoeniclus*** | **Possible** | **Singing male** | **1** | |
| Robin | *Erithacus rubecula* | Possible | Singing male | 2–3 | |
| Rook | *Corvus frugilegus* | Non-breeding | Overflying | | |
| **Sand Martin** | ***Riparia riparia*** | **Non-breeding** | **Overflying** | | **Amber list** |
| Song Thrush | *Turdus philomelos* | Possible | Singing male | 1 | |
| **Stonechat** | ***Saxicola rubicola*** | **Possible** | **Singing male** | **1** | |
| Swallow | *Hirundo rustica* | Probable | Nesting material within farm building (not active during July) | 1-2 | Amber list |
| Woodpigeon | *Columba palumbus* | Possible | Singing male | 0–1 | |

| Species | | Breeding Status | Highest evidence of breeding | Estimated number of territories | Conservation Status: Annex I of Birds Directive or Red/Amber List* |
|---|---|---|---|---|---|
| Wren | *Troglodytes troglodytes* | Possible | Singing male | 4–6 | |

### Wintering birds

Winter Bird surveys were carried out in the period in 2024 and 2025. The primary purpose of the study was to assess usage of pasture land within the proposed development site by birds listed as SCI species for the Cork Harbour SPA.

The lands within the proposed development site are used by grazing cattle. But this grassland is not intensively grazed and/or enriched with fertiliser input. The grassland management has varied through the field surveys. The site slopes gently to the south, but there is distinct higher ground that is dry (at the north of the site) and lower lying wet/agricultural grassland areas to the south. While the shorter grassland within the site could potentially provide habitat for wading birds or waterfowl, no such birds were recorded during any of the site surveys.

Birds recorded during winter bird surveys are listed in **Table 7**. Most species recorded during the winter bird surveys were common, Green List (Gilbert *et al.* 2021), passerine species such as Wren, Robin, Blackbird, etc. These species were recorded within the grassland and hedgerow/treelines within the proposed development site.

A number of BOCC species were recorded during the winter surveys including Snipe, Meadow Pipit and Starling. Snipe, a red list BOCCI species, was recorded within wet/agricultural grassland habitat at the south of the site. Small-scale ongoing drainage and reclamation of marginal farmland and bog habitats likely to be a key factor in their continued decline of this species. Meadow pipit (a Red list BOCCI species), was recorded within grassland. The main cause of declines is thought to be agricultural intensification. Starling (an Amber list BOCCI species). were recorded foraging within grassland habitats.

No SCI species were recorded during the winter surveys.

**Table 7. Birds recorded during winter bird survey**

| Species | | SCI Species<br><br>Cork Harbour SPA | Birds Directive Annex | BOCCI | |
|---|---|---|---|---|---|
| | | | I | Red List | Amber List |
| Blackbird | *Turdus merula* | | | | |
| Blue Tit | *Cyanistes caeruleus* | | | | |
| Hooded Crow | *Corvus cornix* | | | | |
| Jackdaw | *Corvus monedula* | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Meadow pipit | *Anthus pratensis* | | | x | |
| Pheasant | *Phasianus colchicus* | | | | |
| Robin | *Erithacus rubecula* | | | | |
| Rook | *Corvus frugilegus* | | | | |
| Snipe | *Gallinago gallinago* | | | x | |
| Starling | *Sturnus vulgaris* | | | | x |

### 4.9.3 Invasive Species

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

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effects on landscape quality.

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 invasive schedule species were recorded within the proposed development site.

Several other invasive non-native species Buddleia *Buddleia davidii*, Wild clematis *Clematis vitalba*, Montbretia *Crocosmia* × *crocosmiiflora* and Sycamore *Acer pseudoplatanus* were recorded within the proposed development site. Buddleia, Wild Clematis and Sycamore are listed as medium impact species by the NBDC. Montbretia is listed as a low impact species by the NBDC.

These species are not listed in SI 477 of 2011 and therefore there is no statutory obligation to remove them. Buddleia, Wild Clematis and Montbretia have been included in the TII Publication Management of Invasive Alien Plant Species on National Roads – Technical Guidance GE-ENV-01105 (TII, 2020) as they have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure; and are likely to be encountered during road schemes.

## 4.10 Water Quality

### 4.10.1 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 EPA has published an updated draft Catchment Assessment for each of our 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was published in July 2022, aims to build on the progress made during the second 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 wastewater 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 in the vicinity of the proposed development site are provided in **Table 8** and the location of these shown in **Figure 6.**

**Table 8. 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.<br><br>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.<br><br>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. |

| Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) | | | | |
|---|---|---|---|---|
| The proposed development site is located within the Glasheen[Corkcity]_SC_010 sub catchment. All four water bodies in this sub catchment are unassigned but AT RISK due to elevated phosphate concentrations. Further investigation is required to determine what is impacting nutrient conditions. | | | | |
| **Waterbodies relevant to the proposed project** | | | | |
| **Waterbody** | **WFD Risk** | **WFD Status (2016-2021)** | **Significant Pressure** | **Pressure Category** |
| CURRAGHEEN (Cork City)_010 | At risk | Moderate | Yes | Anthropogenic pressures |
| GLASHEEN (Cork City)_010 | At risk | Poor | Yes | Anthropogenic pressures |
| Lee Cork Estuary_Upper | At risk | Moderate | Yes | Urban runoff, urban wastewater |
| Lee Cork Estuary_Lower | At risk | Moderate | Yes | Urban runoff, urban wastewater |
| Lough Mahon | At risk | Moderate | Yes | Urban runoff, urban wastewater |

Source: EPA envision mapping and www.catchments.ie

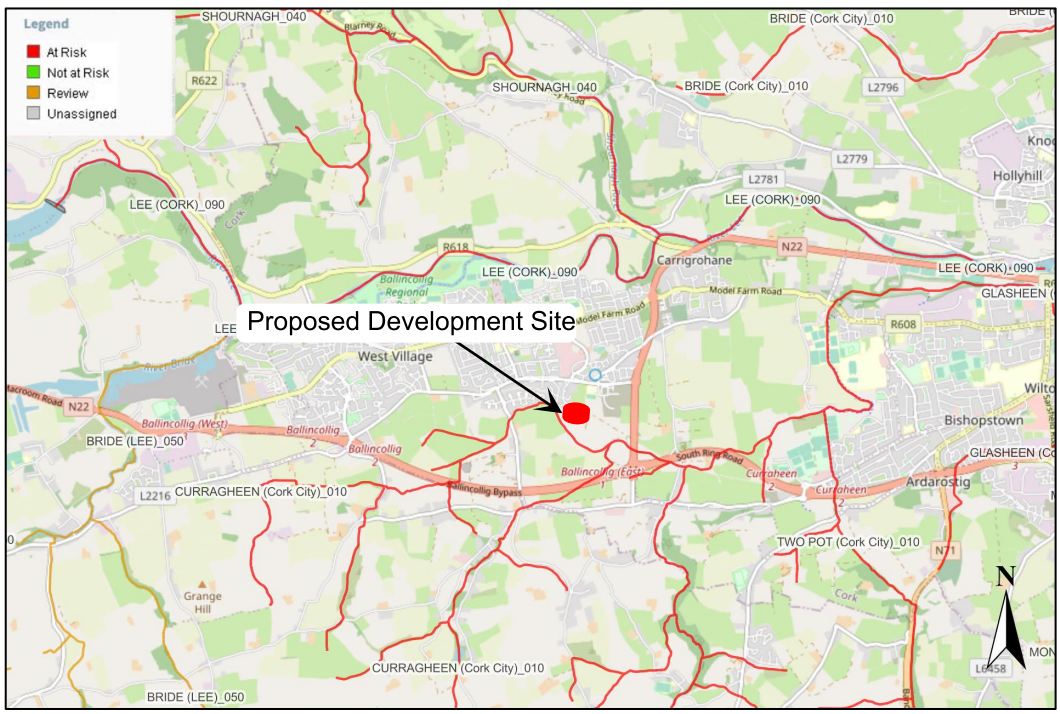



**Figure 6. WFD waterbodies in the vicinity of the proposed development WFD Status Green=Good, Yellow=Moderate; Orange=Poor | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | not to scale**

### 4.10.2 Urban Wastewater Treatment Directive

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

The priority objective for this river basin planning cycle is to secure compliance with the Urban Wastewater 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 Ballincollig WWTP (D0049-01) for treatment prior to discharging into the River Lee.

### 4.10.3 Aquatic surveys

The Maglin North Stream is heavily channelised with a straightened channel, a soft mud substrate and large volumes of woody detritus. Flow is generally laminar, with no significant riffle glide sequences or deep pools. The high earth banks are lined, predominantly with Alder. Willow also common. Shade levels are generally high, which suppresses macrophyte growth and as a consequence there is no significant instream aquatic vegetation. Some Fools watercress was recorded where light levels are higher. There is sufficient flow within the stream to support permanent fish populations. Species such as Stickleback and European eel are likely to occur. Brown trout is also likely to occur, although there is an absence of spawning gravels or high value nursery habitat. In general the stream provides sub-optimal habitat for Brown trout with populations likely to be sparse and localised.

Aquatic surveys were completed at three sites within and downstream of the proposed development site. In general the watercourse has a deep silt substrate and the EPA methodology for ascribing Q values is considered inappropriate. A number of invertebrate species were recorded namely *Tipulidae*, *Lymnea* sp, *Chironomidae, Oligocheate, Asellus sp*. and limited numbers of *Gammerus* sp.

A number of drainage ditches connect to this stream. One prominent drainage ditch runs through the proposed development site, meeting the Maglin North Stream c.60m downstream of the proposed development site. This drainage ditch is shaded and channelized with Willow and Alder along its length. Standing water and rush are present in some areas of the drain, which is likely to dry up during the summer months. This drainage ditch (and other drainage ditches onsite) is unlikely to support permanent fish populations.

The EPA monitors water quality in the rivers and streams across the country – refer to https://gis.epa.ie/EPAMaps/ for most recent data. However, there are no water quality (Q-value) monitoring points on the Maglin North River or rivers further downstream of the site.

There are National Water Monitoring Stations downstream of the site on the Curraheen River. The closest to the site are on the Model Farm Road at Inchagaggin (Carrigrohane Bridge).

The river waterbody WFD status 2016 – 2021 and 2019 – 2024 for the Maglin North River, Curraheen River and all streams draining this WFD River sub-basin is Moderate. This is based on 'expert judgement' (i.e., in the absence of water quality data). All waterbodies in this WFD River sub-basin are assigned 'At Risk'. It is noted that the Curraheen River is coming under anthropogenic pressures. There is one EPA licenced facility (W0214) in the Curraheen (Cork City)_010 WFD River sub-basin, located in Waterfall. This is a privately-operated waste transfer station located near the upper reaches of the Curraheen River – it has no surface water discharges. There are three Section 4 discharge licences in the sub-basin. All three (Ballyburden Meat Processors Ltd, Norwood Grange Nursing Home and the WWTP for a housing estate) are in Waterfall and effectively downstream of the Carriganarra site.

The wastewater treatment plant (WWTP) for the area, operated by Uisce Éireann, is located in Ballincollig near the GAA grounds. The treated water is discharged to the River Lee. This stretch of the River Lee (Lee (Cork)_090) was assigned Good WFD river waterbody status for 2016-2021 but has now been assigned Moderate for 2019 – 2024, reverting to the 2013-2018 WFD river waterbody status. It is assigned 'Not At Risk'. The latest (2023) Q-values upstream (Inniscarra Bridge) and downstream (Leemount Bridge) of the WWTP discharge point is Q4, indicating Good status.

Five surface water samples (SW1 to SW5) were collected by Keohane Geological & Environmental Consultancy (KGEC) from the Maglin North stream along the valley. Surface water samples were collected on 14th February 2024, 7th May and 9th September 2025. The sample locations are shown on **Figure 4** and results of monitoring included in **Table 9**.

**Table 9. Surface water monitoring results on the Maglin North Stream | Source Keohane Geological & Environmental Consultancy (KGEC).**

| Parameter | Units | SW1 | | | SW2 | | | SW3 | | | SW4 | | | SW5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 14/02/24 | 07/06/25 | 09/09/2025 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 |
| Total Alkalinity | mg $CaCO_3$/l | 144 | 145 | 63 | 145 | 135 | 62 | 131 | 123 | 92 | 112 | 103 | 90 | 275 | 235 | 226 |
| Total Nitrogen | mg N/l | 4.95 | 5.964 | 1.014 | 5.12 | 6.479 | 1.544 | 5.15 | 6.193 | 3.222 | 5.58 | 6.221 | 3.777 | 4.56 | 6.539 | 4.566 |
| Nitrate | mg N/l | 3.987 | 5.429 | 0.557 | 4.155 | 5.674 | 1.083 | 4.309 | 5.639 | 2.53 | 4.75 | 5.863 | 3.058 | 3.899 | 6.110 | 3.892 |
| Nitrite | mg N/l | 0.031 | 0.013 | 0.007 | 0.029 | 0.012 | 0.012 | 0.023 | 0.009 | 0.017 | 0.02 | 0.006 | 0.01 | 0.008 | 0.008 | 0.202 |
| Total Ammonia | mg N/l | 0.097 | 0.038 | 0.03 | 0.09 | 0.020 | 0.035 | 0.078 | 0.027 | 0.096 | 0.077 | 0.021 | 0.04 | 0.033 | 0.034 | 0.045 |
| Unionised Ammonia | mg N/l | 0.004 | <0.001 | 0.001 | 0.003 | <0.001 | 0.001 | 0.003 | <0.001 | 0.003 | 0.002 | <0.001 | 0.002 | 0.001 | 0.001 | 0.001 |
| Ortho-Phosphate | mg P/l | 0.055 | 0.034 | 0.043 | 0.054 | 0.032 | 0.064 | 0.05 | 0.033 | 0.142 | 0.054 | 0.040 | 0.104 | 0.02 | 0.014 | 0.026 |
| Total Phosphorus | mg P/l | 0.139 | 0.055 | 0.074 | 0.127 | 0.055 | 0.099 | 0.118 | 0.045 | 0.189 | 0.106 | 0.049 | 0.153 | 0.042 | 0.023 | 0.063 |
| BOD | mg $O_2$/l | 1.7 | 0.8 | 1.7 | 1.3 | 0.8 | 1.8 | 1.0 | 0.6 | 3.2 | 1.2 | 0.8 | 2.4 | 0.3 | 1.2 | 3.4 |
| COD | mg $O_2$/l | 24.4 | 9.2 | 13.6 | 21.8 | 11.8 | 19.2 | 22.2 | 9.2 | 28.3 | 19.2 | 7.9 | 30.9 | 15.3 | 8.8 | 16.6 |

| Parameter | Units | SW1 | | | SW2 | | | SW3 | | | SW4 | | | SW5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 14/02/24 | 07/06/25 | 09/09/2025 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 | 14/02/24 | 07/06/25 | 09/09/25 |
| Chloride | mg Cl/l | 20.0 | 20.7 | 7.8 | 20.2 | 21.0 | 12.1 | 20.5 | 21.0 | 22.1 | 21.1 | 20.2 | 24.4 | 26.5 | 24.7 | 26.1 |
| Suspended Solids | mg/l | 13.3 | 6.0 | 3.2 | 11.8 | 8.0 | 4.0 | 11.5 | 2.5 | 4.5 | 9.8 | 2.8 | 5.0 | 3.8 | 12.3 | 16.8 |
| Conductivity @ 25°C | µS/cm | 394 | 415 | 166 | 397 | 395 | 185 | 377 | 378 | 3.1 | 364 | 342 | 318 | 656 | 587 | 566 |
| Turbidity | NTU | 14.83 | 6.67 | 6.44 | 13.63 | 7.99 | 6.8 | 13.19 | 3.82 | 8.29 | 9.93 | 2.79 | 9.14 | 3.89 | 7.82 | 17.06 |

The results indicate varying water quality along the channel, but with no consistent pattern:

- BOD concentrations range from 0.3 to 3.4mg/l. BOD concentrations ≤1.5 mg/l indicate good status and concentrations ≤1.3mg/l indicate high status. BOD exceeded 1.5 mg/l on several occasions and at all sampling locations in the September 2025 sampling event. Flows were low during this sampling event.

- Total ammonia concentrations ranged from 0.02 to 0.097mg/l. Total ammonia concentrations ≤0.065mg/l indicate good status and concentrations ≤0.040mg/l indicate high status. The concentrations in SW-1 to SW-4 were all above 0.065mg/l in February 2024, so the waters didn't achieve good status for this parameter. However, the total ammonia results for May and September 2025 were (apart from SW3 in September 2025) all below 0.065mg/l indicating good status.

- Total phosphorus concentrations ranged from 0.023 to 0.189mg/l. Total phosphorus concentrations ≤0.025mg/l indicate good status and concentrations ≤0.010mg/l indicate high status. The concentrations were all above 0.025mg/l for all sampling events at most locations, indicating that the waters didn't achieve good status for this parameter. The only result less than 0.25mg/l occurred at SW-5 in May 2025.

- Turbidity and TSS concentrations are low in all samples.

The EPA Phosphorus Pollution Impact Potential[1] at the site is ranked 6 and 7. The EPA Nitrate Pollution Impact Potential[2] at the site is ranked 2 and 3.

### 4.10.4 Flood Risk Assessment

A review of the available flood risk assessment carried out by Keohane Geological & Environmental Consultancy (KGEC) in the Ballincollig area include:

The OPW CFRAM river flood extents mapping shows that the southern-most fringes of the site floods. Flooding occurs to the west of the site along the channel of the Maglin North River. The CFRAM river flood extents mid-range future scenario is shown on Figure 7. Low probability (AEP of 0.1%), medium probability (AEP of 1%) and high probability (AEP of 10%) are shown.

The OPW CFRAM coastal flood extents mid-range future scenario shows a similar flooding pattern along the Maglin North River. The CFRAM coastal flood extents mid-range future scenario is shown on **Figure 8**.

As the site is modelled as part of the CFRAM project, it is not covered by the OPW National Indicative Fluvial Mapping (NIFM). NIFM maps show flooding to occur to the southwest of the site associated with the Maglin North and Maglin South rivers – refer to Figure 8.

[1] Pollutant Impact Potential for Phosphorus has 7 rankings from PIP-P-1 to PIP-P-7. PIP-P-1 is the highest ranking - i.e., highest potential to cause pollution.
[2] Pollutant Impact Potential for Nitrates has 5 rankings from PIP-N-1 to PIP-N-5. PIP-N-1 is the highest ranking - i.e., highest potential to cause pollution.

The Ballincollig drainage study indicates that the 0.1% AEP high end future scenario flooding will extend into the southern periphery of the site (Figure 8). This flood extents maps indicates that the flooding extends slightly further north than the CFRAM map.

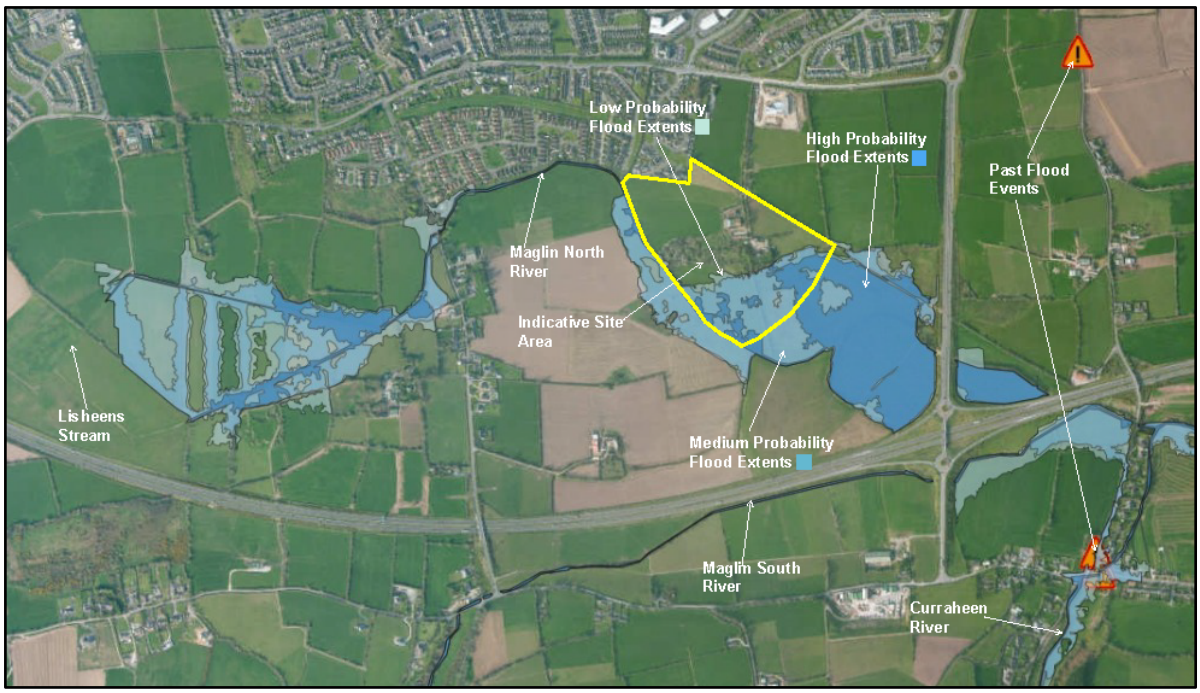



**Figure 7. OPW CFRAM River Flood Extents**




**Figure 8. OPW NIFM River Flood Extent**

As there is a risk of flooding affecting the project site, a Site-Specific Flood Risk Assessment (FRA) was carried out by Malachy Walsh & Partners Consulting Engineers (MWP) in accordance with the OPW's Guidelines.

The conclusions of the MWP FRA are that:

*A hydraulic model was created to predict the flood zones and flood levels at the site. This demonstrated that the majority of the proposed residential development is located in Flood Zone C and therefore has a low probability of flooding. The southern area of the site which includes a small portion of the proposed residential area and the proposed sustainable access corridor is located in Flood Zone A/B and therefore has a high/moderate probability of flooding.*

*The source of potential flooding at the Carriganarra site is the Maglin North River, which bounds the western side of the site. Pluvial flooding is not considered an issue at the site.*

*A Justification Test is required for the proposed residential development, as it encroaches into Flood Zone A and B, and the proposed sustainable access corridor. A Justification Test was carried out which demonstrates that the proposed development of the sustainable access corridor is compliant with Department Guidelines and the Objectives of Cork City Development Plan 2022 – 2028.*

*To ensure that there is no unacceptable flood risk, the following mitigation measures are recommended:*

- *The finished floor level (FFL) of all buildings should be set above the 1% AEP flood level for the medium range future scenario plus 500mm freeboard. On this basis, the design flood level ranges from 16.50mOD to 17.09mOD at the downstream and upstream end of the site respectively. The proposed minimum FFL of the residential units ranges from 17.25mOD to 22.50mOD, and any proposed FFL is over 500mm above the adjacent design flood level.*
- *The land within the site will be raised to a minimum ground level of 17.00mOD which places it above the design flood level.*
- *The sustainable access corridor will be raised to a level ranging from 17.0mOD at the southwestern end of the road to 20.00mOD at the northeastern end of the road which places it above the design flood level.*
- *It was also concluded that, once these mitigation measures are implemented, the proposed development would not have an adverse impact on flooding on third party lands downstream of the sustainable access corridor when compared to the South Ballincollig Drainage Study SFRA.*
- *It was demonstrated that the risk to occupants of the site would be low.*

Residual risks associated with the development were also assessed and are considered to be acceptable.

### 4.11 Potential effects of proposed development on European sites

Potential effects relate to habitat loss, changes to water quality (during construction and operation), the spread of invasive species and disturbance effects during the proposed works. Based on the *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018 and CIEEM guidelines '*Guidelines for Ecological Impact Assessment*' (CIEEM, 2019) impacts are listed as significant using a combination of professional judgement and criteria or standards where available, if impacts

have the potential to have a significant impact on the ecological integrity on the habitats and species for which the site is designated.

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

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

Potential effects could arise from the following:

- Potential effects from loss of habitat
- Potential effects from noise and disturbance
- Potential effects on from surface water runoff/discharges
- Potential effects from wastewater discharges
- Potential effects from spread of invasive species
- In-combination effects.

### 4.11.1 Loss of habitat

The proposed development site is located 9.8km from Cork Harbour SPA and 16.5km from Great Island Channel SAC at its closest point. An ecological appraisal of the site indicates that it supports common habitats which are not of high value in the context of European designations. The habitats recorded within the proposed development site do not correspond to habitats listed on Annex I of the Habitats Directive or qualifying habitat for the Great Island Channel SAC.

The proposed development site is located within managed grassland on the edge of an urban landscape. There are no permanent wetland which could provide valuable foraging or roosting habitat for wading birds within or in immediate proximity to the proposed site boundary. The periodically waterlogged grassland (and other grassland) habitats within the site could potentially provide roosting or foraging habitat for wading birds and waterfowl. However, winter bird surveys over 2024 and 2025 found no SCI birds within or in the vicinity of the proposed development site.

In a 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 Cork 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.

In the absence of any specific European or Irish guidance in relation to establishing ecological connectivity to SPAs NatureScot (SNH, 2016) was consulted. This document provides guidance in relation to the identification of ecological connectivity between development sites and SPAs. The guidance takes into consideration the distances species may travel beyond the boundary of relevant SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects. It goes on to state that "*in most cases the core range should be used when determining whether there is connectivity between the proposal and the qualifying Interests*". Where SPAs are at greater distance from the site than the core foraging distances for their listed Special Conservation Interest (SCI) species, there is no likely ecological connectivity to the development and so the SPAs are outside the likely Zone of Impact.

Core ranges are not available for all SCI species of Cork Harbour SPA. However the following may be indicative or core range for other wading birds. According to NatureScot guidance (SNH, 2016), the core foraging distances of Dunlin is 500m (max 3km), Curlew 1km (max 2km) and Golden Plover 2km (max 11km). Given there are no wetland features of significance of the site, ducks and diving SCI species will not forage at the site e.g. Cormorant, Little Grebe, Great Crested Grebe, Common Tern. Based on the above, the proposed development site is essentially outside the core range for SCI birds of Cork Harbour SPA.

Given the results of the field surveys and the distance from the SPA boundary it is concluded that the grassland onsite do not represent critical foraging or roosting habitat for the SCI birds of Cork Harbour SPA. No signs of SCI birds were recorded here, or in the fields surrounding the proposed development site during the site survey. 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. Considering its distance from the SPA, the core ranges of SCI birds and the absence of permanent wetland habitats in the vicinity, this site does not provide critical roosting or foraging habitat for SCI birds. The proposed development will not result in any significant loss of *ex situ* foraging or roosting habitat for SCI birds for the Cork Harbour SPA.

Considering the above no likely significant effects on European sites i.e. Great Island Channel SAC and Cork Harbour SPA from loss of habitat due to the proposed development have been identified.

### 4.11.2 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 area. It is noted there are no qualifying species for Great Island Channel SAC.

It is noted that the proposed development area is located 9.8km from the SPA boundary and is located adjacent to existing urban road networks and residential developments. As noted in **Section 8.1**, this area does not provide critical habitat for SCI birds. Given the absence of valuable habitats within and in the vicinity of the site, any increases in disturbance at the site during construction and operation will not impact on SCI birds.

No valuable habitat for SCI species was recorded within or adjacent to the proposed development area. The construction phase of the project will increase noise and disturbance, which may have short-term disturbance effects on local wildlife. However, given the lack of valuable habitat for SCI species on or near the proposed development area, no impact on birds listed as qualifying interests for the Cork Harbour SPA is predicted to occur. No likely significant effects on European sites from noise and disturbance due to the proposed development have been identified.

### 4.11.3 Surface water runoff/discharges

Potential impacts on aquatic habitats which can arise from surface water emissions associated with 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 and spillage of cementous materials.

The proposed development site is located c.15.5km upstream of Cork Harbour SPA and 20.2km upstream of Great Island Channel SAC. Silt-laden stormwater run-off during site preparation, site clearance, dewatering of excavations and construction of site access roads as well as spillages of fuel and oil and concrete / cement run-off could potentially impact on water quality within the Maglin North Stream and the Cork Harbour SPA and Great Island Channel SAC downstream of the proposed development site.

During operation surface water from the site will discharged to the Maglin North Stream. In the absence of mitigation, hydrocarbons from the parking areas could be carried in the stormwater and increased volumes of stormwater as a result of increased areas of impermeable surfaces could also occur during operation. The southern margin of the site is within the flood extents area as mapped in the Ballincollig drainage study and as identified in the site-specific flood risk assessment. The sustainable access corridor to serve the development goes through the flood plain; the residential-zoned lands, to be raised, extend into the flood plain; and the open space between the proposed road and housing, to be filled, are in the flood plain. As such, the development will reduce / displace flood storage capacity, potentially increasing flood extents elsewhere.

Therefore, the conservation objectives of Cork Harbour SPA and Great Island Channel SAC may be impacted by surface water runoff/discharges (as well as changes in flood extents) during construction and operation and likely significant effects from surface water emissions cannot be excluded in the absence of mitigation.

### 4.11.4 Wastewater discharges during operation

The proposed housing development could potentially result in an increase in nutrients discharging to Cork Harbour via the River Lee discharge for the Ballincollig Wastewater Treatment Plant (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 conservation interests for the Cork Harbour SPA.

Wastewater from the proposed development will be conveyed for treatment to Ballincollig WWTP. As confirmed in drawing 4208-1003 (Source DOSA Consulting Engineers) the pumping station is located outside the post-development flood extent for 1%AEP extents. All references to 'temporary' have been removed from updated drawings (this description was included in error). The location of the pumping station means there is no significant risk or flooding and/or accidental spillage of foul water to the local stream network. No stormwater captured in basement carparks will be discharged to the foul network. All will be discharged to the stormwater network. The pumping station will be designed in accordance with Uisce Éireann code of practice and will incorporate duty and standby pumping capacity, high-level alarms, telemetry, emergency storage and appropriate arrangements for power or pump failure. No emergency overflow to the Maglin North Stream or the surface-water drainage network is proposed. These embedded design measures, together with the location of the station outside the post-development 1% AEP flood extent, ensure that there is no realistic pathway for an accidental foul-water discharge to the local watercourse network.

The Ballincollig agglomeration is served by a wastewater treatment plant with a Plant Capacity Population Equivalent (P.E.) of 33,000. The agglomeration consists of one primary discharge point which discharges to the River Lee, located approximately 14.6km upstream of the Cork Harbour SPA and 19.3km upstream of Great Island Channel SAC.

The WWTP obtained a discharge licence (Reg: D0049-01) 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 River Lee, the Lee Estuary and surrounding waters.

Treated effluent from the proposed development will discharge from the Ballincollig WWTP via the main treated effluent line. The discharge licence assigns ELV's for total phosphorus (Total P), chemical oxygen demand (COD), total suspended solids (TSS), biological oxygen demand (BOD), Ammonia, pH and orthophosphate. The ELVs are set based on the full design capacity (P.E. 33,000) 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.

It is noted that the proposed occupancy of the housing development is approximately Total PE for the development can be taken as 870.8 PE (based on 2.7 persons per dwelling and 60.8 PE for creche). Based on the most recent EPA data (Source Envision mapping) the agglomeration PE for Ballincollig WWTP was 25,105 (AER 2024). The proposed development would increase the current WWTP P.E. from 25,105 to 25,975.80, which is well within the 33,000 P.E. design capacity.

The most recent AER (2024) notes that the final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values for Ammonia-Total (as N) mg/l Total Nitrogen mg/l which were linked to adverse weather events. The following was noted:

- *The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Total Nitrogen mg/l, Ammonia-Total (as N) mg/l.*
- *The ambient monitoring results does meet the required EQS at the downstream monitoring location. 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.*

It is noted that the annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity.

A Pre-Connection Enquiry was submitted to Irish Water which 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 addition of the effluent discharge from the proposed Carriganarra LRD to the Ballincollig WWTP is well within its design capacity and will not compromise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, no significant impacts are predicted from the proposed development given the current operating conditions at the WWTP. The WWTP discharge is located 14.6km upstream of Cork Harbour SPA and 19.3km upstream of Great Island Channel SAC. Minor increases in nutrient levels potentially discharged by the WWTP will not have a significant impact on water quality within the River Lee and/or the Cork Harbour SPA and Great Island Channel SAC. Therefore, no likely significant effects on water quality within European sites from wastewater discharges have been identified.

### 4.11.5 Spread of Invasive Species

No high-impact invasive plant species were recorded within the proposed development area. Other non-native invasive species recorded within the proposed development site comprised Buddleia (*Buddleja davidii*), Sycamore (*Acer pseudoplatanus*), Montbretia (*Crocosmia* × *crocosmiiflora*) and Wild Clematis (*Clematis vitalba*).

An Invasive Species Management Plan has been submitted with the planning application and forms part of the proposed development. The plan includes species-specific measures for the identification, control and removal of these species, the management and disposal of affected plant material and soils, site biosecurity and post-treatment monitoring.

Notwithstanding these proposed management measures, the low- and medium-impact invasive species recorded within the proposed development site would not, in the absence of mitigation, provide a realistic pathway for effects on the estuarine habitats or species of Cork Harbour SPA or Great Island Channel SAC, located more than 15km downstream. These species are principally associated with terrestrial habitats and there is no credible mechanism

by which their potential spread from the development site could affect the conservation objectives of either European site.

Therefore, no likely significant effects on Cork Harbour SPA or Great Island Channel SAC arising from the spread of invasive plant species have been identified, either alone or in combination with other plans or projects.

### 4.11.6 In-combination Impacts

In-combination 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.

Article 6(3) of the Habitats Directive requires that:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*

It is therefore required that the potential impacts of the proposed development are considered in-combination with any other relevant plans or projects.

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

While the main land use within the site is aquaculture (Oyster farming), the greatest threats to its conservation significance comes from road works, infilling, sewage outflows and possible marina developments.

An assessment of plans and projects with the potential for in-combination effects in association with the proposed development was undertaken. A search of planning applications in the vicinity of the proposed development was undertaken in January 2026 to examine projects with potential for in-combination effects (Source: Cork City Council, An Bord Pleanála, EPA). Other projects or developments which could potentially cause in-combination impacts are listed in **Table 10**.

**Table 10. Other projects or developments which could lead to potential in-combination impacts**

| Plans and Projects European Network | Key Policies/Issues/Objectives Directly Related to the Conservation of the | |
|---|---|---|
| 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.<br>• Ensure full compliance with relevant EU legislation<br>• Prevent deterioration<br>• Meeting the objectives for designated protected areas<br>• Protect high status waters<br>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.<br>To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected.<br>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.<br>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. |
| 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 | The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for |

| Plans and Projects European Network | Key Policies/Issues/Objectives Directly Related to the Conservation of the | |
|---|---|---|
| | contribute towards improved water quality and biodiversity requirements through reducing:<br>• Habitat loss and disturbance from new / upgraded infrastructure;<br>• Species disturbance;<br>• Changes to water quality or quantity; and<br>• Nutrient enrichment /eutrophication. | 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.<br><br>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. |
| **WWTP discharges** | Coachord, Dripsey, Macroom, Cloghduv | Discharges from municipal WWTPs are required to meet water quality standards. Irish Water Capital Investment Plan 2022-2024 proposes to upgrade water treatment services countrywide.<br><br>Therefore, significant in-combination effects can be ruled out. |
| **Other developments in the vicinity** | | |
| | Murnane and O'Shea Ltd. 25/44048. Large scale residential development (LRD) of 544 no. residential units, a two storey creche facility, commercial/retail unit and ancillary development | As noted above, no likely significant effects from noise or disturbance have been identified with the project and therefore, no potential in- |

| Plans and Projects European Network | Key Policies/Issues/Objectives Directly Related to the Conservation of the | |
|---|---|---|
| | at Greenfield, Ballincollig, Co. Cork. Located c.1.8km west.<br><br>Cork Luas Emerging preferred routes<br><br>Coleman Homes 24/43308 Creche. permitted 07/10/2024. c.830m west<br><br>Coleman Home 23/42446 Large scale residential development (LRD) of 162 units, landscaping and all ancillary site works. Maglin Road, Ballincollig. Development permitted and under construction. c.830m west<br><br>MOS Homes Limited 22/41644 Construction of 98 dwellings at Heathfield, Ballincollig. Development permitted and under construction. Along northern boundary.<br><br>MOS Homes Limited 26/44475. Construction of 11 no. dwellings at Heathfield, Ballincollig. Along northern boundary.<br><br>O'Flynn construction 25/44222. LRD for the construction of 1,150 no. residential units, 1 no. creche, 3 no. retail units at Maglin, Ballincollig. C.700 west | combination effects have been identified for noise and disturbance.<br><br>In the absence of mitigation, the potential for significant in-combination effects on Cork Harbour SPA with other projects from emissions to water during construction and operation cannot be ruled out.<br><br>No other significant in-combination impacts have been identified. There are no projects which could have a potential significant in-combination effect along with the proposed development. |

As noted in **Section 4.7.4**, the proposed development will connect Ballincollig WWTP which currently has capacity for this discharge (based on most recent EPA data). As clarified in the RFI response, the pumping station is located outside the flood zone. The Ballincollig WWTP has considerable headroom available for the current and other permitted/proposed developments in the Ballincollig agglomeration. The WWTP is currently not having an observable negative effect on water quality or on the Water Framework Directive status within the River Lee/Lee Estuary downstream and no effects of cumulative wastewater loading for the proposed development have been identified. Therefore, no likely significant in-combination impacts due to foul effluent discharges from the proposed development have been identified.

In the absence of mitigation, the potential for significant in-combination effects on Cork Harbour SPA or Great Island Channel SAC with certain projects identified in **Table 10** from emissions to water during construction and operation cannot be ruled out.

## 4.12 Stage One Appropriate Assessment Conclusions

### 4.12.1 Screening of Relevant Natura 2000 Sites and Qualifying Interests/Special Conservation Interests

Potential significant effects on Cork Harbour SPA and Great Island Channel SAC cannot be ruled out. Screening conclusions with regards to the qualifying species and habitats for relevant European sites are provided in **Table 11**. No significant effects on the conservation objectives of other European sites will occur. Sites/QIs/SCIs that are screened in for further assessment are highlighted in bold.

**Table 11. Screening of relevant European sites**

| Natura 2000 Site | Qualifying Interest | Potential Impacts | Screened In/Out |
|---|---|---|---|
| **Cork Harbour SPA (Site code 004030)** | ▪ **A056 Shoveler *Anas clypeata***<br>▪ **A149 Dunlin *Calidris alpina***<br>▪ **A140 Golden Plover *Pluvialis apricaria***<br>▪ **A050 Wigeon *Anas penelope***<br>▪ **A028 Grey Heron *Ardea cinerea***<br>▪ **A069 Red- breasted merganser *Mergus serrator***<br>▪ **A142 Lapwing *Vanellus vanellus***<br>▪ **A130 Oystercatcher *Haematopus ostralegus***<br>▪ **A141 Grey plover *Pluvialis squatarola***<br>▪ **A052 Teal *Anas crecca***<br>▪ **A05 Pintail *Anas acuta***<br>▪ **A157 Bar-tailed Godwit *Limosa lapponica***<br>▪ **A162 Redshank *Tringa totanus***<br>▪ **A183 Lesser Black-backed gull *Larus fuscus***<br>▪ **A179 Black-headed Gull *Chroicocephalus ridibundus***<br>▪ **A004 Little Grebe *Tachybaptus ruficollis***<br>▪ **A160 Curlew *Numenius arquata***<br>▪ **A182 Common Gull *Larus canus***<br>▪ **A048 Shelduck *Tadorna tadorna***<br>▪ **A017 Cormorant *Phalacrocorax carbo***<br>▪ **A193 Common Tern *Sterna hirundo***<br>▪ **A005 Great crested grebe *Podiceps cristatus***<br>▪ **A156 Black-tailed Godwit *Limosa limosa***<br>▪ **A999 Wetlands and waterbirds** | Given the potential impacts from surface water runoff/discharges and potential changes in flood extents during construction/operation and the hydrological connection of the proposed development site to the SPA, significant effects cannot be ruled out due to impacts on water quality during the construction and operational phase.<br><br>The proposed development site does not provide habitat that is relied upon by SCI Birds. Given the distance from valuable roosting and foraging habitats within the SPA, the absence of valuable foraging/roosting habitats within the proposed development site, and the existing noise/disturbance environment, significant adverse effects on Cork Harbour SPA from noise and disturbance on *ex-situ* habitats can be excluded.<br><br>In the absence of mitigation, the potential for significant adverse in-combination effects on Cork Harbour SPA from emissions to water during construction and operation cannot be ruled out. No other significant in-combination impacts have been identified.<br><br>No significant impacts from loss of habitat, foul water discharges, emissions to air or the spread of invasive species have been identified. | Screened in (surface water) |

| Natura 2000 Site | Qualifying Interest | Potential Impacts | Screened In/Out |
|---|---|---|---|
| **Great Island Channel SAC (site code 001058)** | **1140 Mudflats and sandflats not covered by seawater at low tide**<br><br>**1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)** | Given the potential impacts from surface water runoff/discharges and potential changes in flood extents during construction/operation and the hydrological connection of the proposed development site to the SAC, significant effects cannot be ruled out due to impacts on water quality during the construction and operational phase.<br><br>In the absence of mitigation, the potential for significant adverse in-combination effects on Great Island Channel SAC from emissions to water during construction and operation cannot be ruled out. No other significant in-combination impacts have been identified.<br><br>No significant impacts from loss of habitat, foul water discharges, emissions to air or the spread of invasive species have been identified. | Screened in (surface water) |

### 4.12.2 Screening conclusion

The aims of this screening section of this report were as follows:

- 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.
- Provide information on and assess the potential for the proposed development to significantly impact on Natura 2000 Sites (also known as European sites).
- Determine whether the proposed development is directly connected with, or necessary to the conservation management of any Natura 2000 sites.

It has been objectively concluded that:

- The proposed development is not directly connected with, or necessary to the conservation management of any Natura 2000 sites.
- On the basis of objective information, the possibility of significant effects from the proposed development on European sites cannot be excluded. There is potential for the proposed development to significantly impact the Cork Harbour SPA and Great Island Channel SAC via impacts on water quality during construction and operation (surface water).
- The proposed development, alone or in combination with other projects could potentially impact on the conservation objectives of Cork Harbour SPA and Great Island Channel SAC.

On the basis of objective information and in view of best scientific knowledge, the possibility of significant effects from the proposed development on the Cork Harbour SPA and Great Island Channel SAC, cannot be ruled out and therefore an Appropriate Assessment is required.

The NIS (below) has been prepared to inform and assist Cork City Council, 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 significant effects on Cork Harbour SPA and Great Island Channel SAC.

# 5. Stage 2 – Natura Impact Statement

## 5.1 Introduction

The main objective of this stage (Stage 2, Natura Impact Statement) in the Appropriate Assessment process is to determine whether the proposed LRD at Carriganarra, Ballincollig, Co. Cork (either alone or in combination with other plans, programmes and projects) will result in significant adverse impacts to the integrity of the Natura 2000 sites identified in the previous section i.e., Cork Harbour SPA and Great Island Channel SAC with respect to the site's structure, function and/or conservation objectives. This stage also outlines the mitigation measures that should be taken in order to avoid any negative impacts associated with the proposed development.

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

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

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (**Table 12**) are to maintain a favourable conservation condition of the non-breeding/breeding waterbirds and to maintain the favourable conservation condition of the wetland habitat at Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

**Table 12. SCI species for which a potential impact has been identified – specific targets**

| Species/Habitats | Attribute | Measure | Target |
|---|---|---|---|
| Little Grebe<br>Great Crested Grebe<br>Cormorant<br>Grey Heron<br>Shelduck | Population trend | Percentage change | Long term population trend stable or increasing |
| Wigeon<br>Teal<br>Pintail<br>Shoveler<br>Red-breasted Merganser<br>Oystercatcher<br>Golden Plover<br>Grey Plover<br>Lapwing<br>Dunlin | 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 |

| Species/Habitats | Attribute | Measure | Target |
|---|---|---|---|
| Black-tailed Godwit<br><br>Bar-tailed Godwit<br><br>Curlew<br><br>Redshank<br><br>Black-headed Gull<br><br>Common Gull<br><br>Lesser Black-backed Gull | | | |
| Common Tern | Breeding population abundance: apparently occupied nests (AONs) | Number | No significant decline |
| | Productivity rate: fledged young per breeding pair | Mean number | No significant decline |
| | Distribution: breeding colonies | Number; location; area<br><br>(hectares) | No significant decline |
| | Prey biomass available | Kilogrammes | No significant decline |
| | Barriers to connectivity | Number; location; shape; area (hectares) | No significant increase |
| | Disturbance at the breeding site | Level of impact | Human activities should occur at levels that do not adversely affect the breeding common tern population |
| Wetlands | Habitat area | Hectares | The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation |

The Conservation Objectives Supporting document for Cork Harbour SPA (NPWS, 2014c) provides a review of the site conservation condition and population trends for Cork Harbour SPA with regard to species' all-Ireland and international trends. All-Ireland trends follow I-WeBS data 1994-2015 (Birdwatch Ireland 2022) while International trends follow Wetlands International (2012). The conservation status of Cork Harbour SPA's SCI birds are included in **Table 13**.

**Table 13. Conservation Status of SCI species within Cork Harbour**

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

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

## 5.3 Status of Qualifying Interests (QI) for 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.

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 14**.

**Table 14. 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 15.** 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 15. 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.<br><br>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 |

| Attribute | Measure | Target |
|---|---|---|
| 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 |
| 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. Assessment of Likely Significant Effects

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

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

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

Likely significant effects were identified as follows:

- Surface water runoff during construction
- Surface water discharges during operation
- In-combination impacts

## 6.1 Surface water runoff during construction

Potential impacts on aquatic habitats which can arise from this type of development include increased silt levels in surface water run-off, silt from dewatering of excavations, concrete spillage and hydrocarbon spillage. In the absence of appropriate design and mitigation, high levels of silt in surface water run-off from construction works, could theoretically 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. Excessive siltation can cause eggs and fry to be smothered. In particular impacts on spawning lamprey and salmonids can be significant. 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. Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced.

Inadvertent spillages of hydrocarbons during construction could introduce toxic chemicals into the aquatic environment via surface water run-off or groundwater contamination and have a direct toxicological impact on habitats and fauna.

The Maglin North Stream (EPA name Grange Hill; River waterbody code IE_SW_19C120740), a tributary of Curraheen Stream, runs along the western boundary of the proposed development site. Cork Harbour SPA is located c.15.5km downstream of this

point. Great Island Channel is located c. 20.2km downstream. Therefore, surface water run-off during the construction could potentially flow into the Cork Harbour SPA and Great Island Channel SAC via the Maglin North Stream.

Given the proximity of the Maglin North Stream to the construction works area, a range of mitigation measures have been specified to prevent impacts on water quality. **Section 7** of this report (as well as in the Construction, Environmental, Management Plan (CEMP)) include a range of site specific measures to prevent adverse effects on local water quality. The infilling of the lands between the sustainable access corridor and the residential units will also be set back 10m from the riverbank. Hydrocarbon, cement and silt control measures will be implemented throughout construction works. Ongoing monitoring of the Maglin North Stream will be conducted during construction works. The proposed single-span bridge across the Maglin North Stream will not require instream works.

Given the surface water mitigation measures will ensure there are no adverse effects on local water quality, there will be no adverse effects on the conservation objectives of the Cork Harbour SPA and Great Island Channel SAC from construction surface water runoff during construction works.

### 6.2 Surface water discharges during operation

During operation, the proposed surface water management system is designed, as much as is feasible, in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The runoff from the site will be controlled and managed using a suite of SuDS and engineering controls designed for a 1:100-year storm event plus a 20% allowance for climate change. These will include rainwater harvesting (water butts – to be retrofitted by homeowners), infiltration basins, filter drains, tree pits, raingarden / bioretention tree pits, blue / green roofs, and attenuation tanks fitted with flow control devices. Hydrocarbon interceptors will also be installed upstream of each attenuation tank. SuDS features to manage runoff from the sustainable access corridor and filled areas include filter strips, filter drains and bioretention strips. The filled areas will be graded to direct overland flow to the filter drains to bring surface water to the west. The overall management will limit discharge from the site to greenfield rates – 21.8 l/sec for the residential area (outfall No.1) and 2.9 l/sec for the sustainable access corridor (outfall No.2). A dedicated attenuation tank will be provided to cater for the proposed section of Maglin Sustainable Access Corridor. This tank as outlined on the Proposed Stormwater & Foul network Layout Drawing No. 4208-0221 will have a storage volume of 330m³ and will be fitted with a hydro brake to restrict the discharge to 2.90 l/second.

With the potential for oil spills and leaks from cars parked in the development, hydrocarbon interceptors and grit traps are included in the drainage design to protect the water quality in the Maglin North River (CNSB10s petrol interceptor will be fitted on the network prior to the attenuation tank). The hydrocarbon interceptors will be cleaned and maintained by the management company.

Engineering solutions are proposed to manage stormwater runoff – 6 No. tanks and 3 infiltration basins are proposed. The basins are specifically for their associated green areas only and will cater for similar infiltration rates that they are currently catering for in. There will be no increase in the intensity of infiltration in these areas. All attenuation will be via the

proposed attenuation tanks. The implementation of SUDS measures is limited due to the presence of Karst but where suitable and located remotely from structures SUDS measures that will not over intensify infiltration have been proposed.

Discharge from the site will be to 2 No. areas of stone riprap at the head of constructed open drains with setbacks of approximately 10m from the river. These will dissipate energy and avoid bank erosion / scouring in the drains and riverbed.

MWP has carried out a Site-Specific Flood Risk Assessment (SSFRA) for the proposed development. The SSFRA had regard to findings of the Ballincollig drainage study, which identified flooding extending into the southern portion of the site for a 1:100-year rainstorm event. The conclusion of the SSFRA is that, with the recommended mitigation (refer to **Section 4.10.4**), the development is at low risk of flooding for the design event and that it will result in only slight changes to the flood levels in adjoining lands. It concluded that there will be higher flood levels upstream of the sustainable access corridor of up 360mm extending approximately 350m upstream. Downstream of the sustainable access corridor increases of up to 50mm extending for 250m would be experienced. These increase flood levels occur in areas already identified as being at risk of flooding, with only a slight increase in extents on the upstream side of the sustainable access corridor. The SSRRA concluded that, once the mitigation measures are implemented, the proposed development would not have an adverse impact on flooding on third party lands downstream of the distributor road when compared to the South Ballincollig Drainage Study SFRA. Although the proposed development will result in localised changes to flood levels around the sustainable access corridor, the hydraulic model does not predict a material change in flood extent or flow conditions farther downstream. The changes will not extend to the Lee Estuary or Cork Harbour and will not alter tidal inundation, sediment supply, erosion or accretion processes within Great Island Channel SAC, or the area and distribution of the wetland habitats supporting Cork Harbour SPA. Accordingly, the local hydraulic changes will not adversely affect any conservation-objective attribute or target for either European site.

The operational surface water design measures will ensure there are no significant impacts on local water quality, rates of runoff to local watercourse and flood risk to sites downstream. Therefore, there will be no adverse effects on the conservation objectives of the Cork Harbour SPA and Great Island Channel SAC from operational surface water discharges.

# 7. Mitigation Measures

The mitigation measures have been drawn up in line with current best practice and include an avoidance of sensitive habitats at the design stage and mitigation measures will function effectively in preventing significant ecological impacts. The following mitigation measures will be implemented:

A Construction Environmental Management Plan (CEMP) has been prepared (by DOSA Consulting Engineers) for the proposed development and this contains construction mitigation measures, which are also set out in this report.

## 7.1 Stripping & Earthworks

In parallel with access road construction the main earthmoving works will be undertaken on the site. As the plant required for this phase will remain on site and not leave until the work is

complete and the materials input is minimal, it is considered that the site access outlined will be adequate to cater for the construction works.

Level platforms will be excavated for each residential building and there will be a requirement to import stone material for the access roads and to the front of each dwelling. Measures will be in place to contain dust and/or to ensure that mud and other debris are kept off the public roadways. Existing on-site material will be reprofiled where suitable. External material will be imported from licensed and regulated quarries.

If during the course of development external suitable material becomes available the process of importing same under an Article 27 agreement will be explored and implemented. Article 27 of the European Communities (Waste Directive) Regulations, 2011, allows an "economic operator" to decide, under certain circumstances, that a material is a by-product and not a waste.

All works will be carried out in accordance with Departmental guidelines and procedure.

### 7.2 Bulk Earthworks

The proposed topography on site has been estimated using Kubla Cubed volumetric analysis software. This software utilises earthworks TIN (Triangulated Irregular Networks) prism volume calculation engine to estimate volumes. A TIN is a network of interconnected triangles that represent the surface of the land. The software then uses these TINs to calculate the volume of the earth moved by creating prisms between the existing and proposed ground surfaces. Each prism is essentially a three-dimensional shape with a triangular base and a height representing the difference in elevation between the existing and proposed ground. By summing the volumes of all these prisms, the software can accurately estimate the cut and fill volumes for the project.

The duration that subsoils layers are exposed to the effects of weather shall be minimised. Disturbed subsoil layers will be stabilised as soon as practicable (e.g., backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material shall be protected for the duration of the works. Stockpiles of subsoil material shall be located separately from topsoil stockpiles. These stockpiles will be monitored throughout the construction phase. Monitoring of ground conditions and stability of excavations will be monitored on an on-going basis. Once the earthworks and landscaping are completed, the risk of sediment loading of water courses is significantly reduced.

The proposed mitigation measures for both the construction and operational phases include:

- Careful selection of stockpile locations to-avoid, as far as practical, double handling of materials; avoid steep slopes; avoid natural overland flow paths of stormwater runoff; provide shelter from the prevailing wind direction.
- Blading off the vegetative layer (for separate storage). Vegetation will not be incorporated in the stripped topsoil.
- Avoid stripping in inclement wet weather conditions. Wet soils are more difficult to work and handle and it is more likely to damage soil structure in wet conditions.

- Avoid extending topsoil stripping into the mineral soil layer. Limiting height of stockpiles to avoid anaerobic conditions occurring.
- Profiling of stockpiles to promote rainwater runoff.
- Check dams and / or straw bales will be installed along the alignment of roadside drainage to slow flows and remove silt. These will be constructed using clean stone and geotextile spanning across the drainage channel
- Placement of silt fencing downgradient of stockpiles to catch any fines carried by stormwater runoff.
- Stockpiles will be allowed vegetate naturally, which will reduce erosion by wind and water.
- A street sweeper will attend site regularly to clean the road when there are truck movements in and out of the site.
- Earthworks will be suspended during extreme weather conditions. An extreme rainfall event will be classified as an event that corresponds to the Met Éireann Orange–Weather Alert for Rainfall.
- Hard surface roads will be regularly swept to remove mud and aggregate materials from their surface.
- Public roads outside the site will be regularly inspected for cleanliness, and cleaned as necessary.
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind; and
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods.

### 7.3 Storage and Use of Materials

Specific areas for storage, delivery and loading/unloading of materials will be designated, which will have appropriate containment/spill protection measures where required.

Handling and storage areas will be actively managed and fine, dry material will be stored inside enclosed shields/coverings or within central storage areas.

A regular review of weather forecasts of heavy rainfall will be conducted, and a contingency plan will be prepared before and after such events to minimise any potential nuisances.

Discharge water generated during the placement of concrete will be stored and removed off-Site for treatment and disposal.

Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.

### 7.4 Demolition

The construction of the proposed development will involve the demolition of four buildings, removal of hard surfacing and existing services. Material is to be disposed of to a landfill or facility licensed to take that class of material.

### 7.5 Maintenance of Plant and Machinery

All plant and equipment will be regularly cleaned and properly maintained and there will be no washing out of any concrete trucks on site. Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather and with impermeable pouring mats laid down where possible.

### 7.6 Storage and Use of Fuels, Oils, and Chemicals

Where possible, refuelling of vehicles and equipment will not be carried out on site to minimise the potential for spills or leaks to occur. However, some fuel, lubricants and hydraulic fluids will need to be stored on site during construction works for equipment such as excavators and generators.

Appropriate bunding, storage and signage arrangements for all deleterious substances (e.g., fuels, oils, and chemicals) will be used.

Fuels, lubricants, and hydraulic fluids for equipment used on the construction Site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005).

Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or recycling.

Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled.

Spillage and leaks of oil from cars parked in the development during the Construction Phase Share unavoidable. To reduce the potential impacts, oil interceptors will be incorporated into the Site drainage design.

Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Site and properly disposed of.

Refuelling will be carried out from tanks or delivery vehicles on a designated impermeable surface and will not be left unattended.

Plant will not be left running when not in use (i.e., no idling) and plant with dust arrestment equipment will be used where practical.

The fuel storage area will be properly secured to prevent unauthorised access or vandalism and all triggers will be locked when not in use. Spill kits and drip trays will be used during refuelling to collect any potential spills or overfills. No vehicles or containers will be left unattended during refuelling.

Mobile fuel bowsers may be used for refuelling heavy equipment. Bowsers used will be double skinned and spill kit/drip tray equipment will be used during refuelling which will take place away from any nearby drains or watercourses and from any surface water drainage gulley's.

*Spill/Environmental Response Procedures*

Robust and appropriate Spill Response Plan and Site Environmental Emergency Plans (SEP) will be implemented for the duration of the works.

Identifying fuel storage and refuelling locations on designated areas within the compound, away from drainage ditches/waterbodies, and on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater;

Identifying spill kit locations (spill kits will be required for each piece of heavy equipment (e.g., excavators, loaders, trucks, etc.,) which will be at least 21L drum size each with spill pads, sorbent, small boom, plastic garbage bag and gloves;

A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on Site.

Staff will be trained and experienced in using appropriate control measures and spill kits on-Site, and will be familiar with the location of all spill kit locations and the Site layout.

A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be always available and shall include as a minimum:

Valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;

Emergency response procedures/precautions for each material;

Personal Protective Equipment (PPE) is required when using the material.

### 7.7 Training and Awareness

All site staff will be required to complete an induction prior to commencement of works on the site. The details of the site induction will be provided by the main contractor in the Construction Health & Safety Plan.

As part of the site induction, all site staff will be made aware of the presence of the sensitive ecological areas in the vicinity of the site. Employees will also be informed about the risks associated with stormwater runoff on site and will be required to ensure no runoff or chemicals will enter the adjoining network once installed.

During the project works, the Site Manager or Project Environmental Manager will deliver strategic toolbox talks focused on potential environmental and safety risks associated with the works being carried out at that stage of the project.

### 7.8 Surface Water Drainage

The storm water system will involve a network of underground pipelines and manholes discharging to an existing adjoining watercourse via an attenuation system, which will be fitted

with flow control devices to ensure no increase in peak flows and an oil interceptor and silt trap to remove any traces of oil and silt washed off road surfaces.

The services layout drawings included at planning stage show the proposed surface water drainage layout for the entire site.

The proposed mitigation measures for both the construction and operational phases include:

- Silt traps such as a combination of an earthen berm, silt-fencing and associated interception trenches will be installed along the extent of the southern boundary of the Site adjoining the existing spine road, such that no contaminated surface water run-off can leave the Site.
- Settlement ponds will be lined with cohesive material, with the addition of an engineered liner where a sealed drainage system is in use, and outlet by infiltration will not be permitted in order to protect the receiving groundwater at the Site.
- Under no circumstances will wastewater from equipment, wheel or surface cleaning be allowed to discharge into any drainage ditches, the ground or downslope.
- Debris and sediment captured by vehicle wheel washes will be collected and disposed of off-Site at a licensed facility.

In addition, the below-listed measures serve to work in tandem with and complement efforts to mitigate sedimentation/siltation and the release of pollutants on Site during the Construction Phase.

- Site Environment Plan (SEP) identifying fuel storage and refuelling locations will be developed and this plan will also identify the spill kit locations. Spill response kits will be required for each piece of heavy equipment (i.e. Excavators, Loaders, Trucks) which will be at least 21 litre drum size each with spill pads, sorbent, small boom, plastic garbage bag and gloves.
- Silt traps will be installed on surface water drains during the site development works.
- Constructing buildings and roads above the flood level to ensure that back flows through the surface water outfalls will not occur.
- All foul and other waste water will be discharged to the foul drainage system. The storm drainage system with associated hydrocarbon interceptors and silt collection will be cleaned and maintained on an on-going basis throughout its lifetime in a manner and frequency that is in line with guidelines. All bypass separators are required by legislation to be fitted with an oil level alarm system with recommendations that the alarm is installed, tested, commissioned, and regularly serviced by a qualified technician. The alarm indicates when the separator needs immediate maintenance in order for it to continue to work effectively. The Environmental Agency's PPG3 guidelines stipulate that every 6 months, and in accordance with manufacturer's instructions, experienced personnel should carry out maintenance to both the separator and alarm. It is proposed to enter into a maintenance agreement with the bypass separator supplier will be to provide a full technical and service package

including separator and alarm installation, commissioning, oil and silt removal and route service contracts.

The following measures will be implemented for the storage and use of hydrocarbons on site:

- Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled.
- Refuelling will be carried out from these tanks or from delivery vehicles and will not be left unattended.
- Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice - (Enterprise Ireland BPGCS005).
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the site and properly disposed of.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- The development's road network will be finished with tarmac or asphalt surface which will discharge runoff to a piped drainage system.
- Proven engineering practice will apply during the hydraulic design process.
- Surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.
- Spillage and leaks of oil from cars parked in the development during the operational phase is unavoidable. To reduce the potential impacts, oil interceptors will be incorporated into the site drainage design.
- The area is serviced by mains gas and this utility will be provided to the new development. The use of home heating oil is therefore eliminated so the risk has been removed.
- The proposed development is not anticipated to cause an adverse impact on the surface water regime given the remedial and reductive measures previously outlined. Normal proven construction reinstatement and backfilling procedures will follow pipe laying, jointing, and testing procedures.

### 7.9 Bridge

The development provides for the construction of a bridge across the Maglin North River. And although the bridge will not be constructed as part of the Carriganarra LRD, the assessment of its construction is included in this report for completeness.

A Bridge is proposed to carry the access road and services over the existing watercourse (Maglin North Stream) and incorporates a deck, supported on piers and abutments which are

in turn supported by foundations. Abutments are formed to support the ends of the deck; piers are formed.

The main Bridge elements can be steel or concrete or combinations of these. Concrete can be cast on site (in situ) or can include precast units which are transported to the site. The exact form and materials used on the Bridge is specific depending on the nature of the Bridge, the alignment of road it carries, the distances between the abutments (spans). In this case the Bridge will most likely be predominantly a precast structure delivered to site.

The road surface on the Bridge deck will be a bituminous bound pavement laid on a waterproofing coat. Bridge deck waterproofing can either be a spray applied or sheet membrane system. The spray applied system comprises a solvent free methyl methacrylate resin spray and a polymer modified bituminous based hot melt adhesive tack coat. The sheet membrane system comprises a non-woven polyester reinforced, styrene-butadene-styrene (SBS) polymer modified bitumen sheet with a solvent-based bituminous primer and blown (oxidised) bitumen bonding. A steel parapet is also fixed to the Bridge deck.

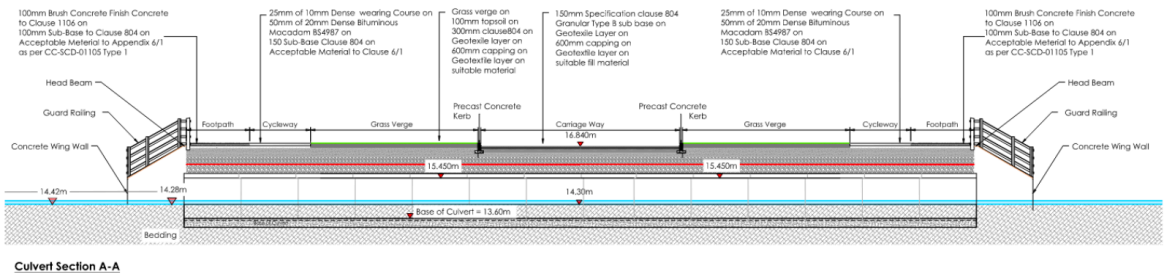



**Figure 9. Bridge long section**

### 7.9.1 Bridge Construction Sequence

Construction of the Bridge will commence when the earthworks embankments on the adjacent sections of road are at abutment level. Typical Bridge construction procedures may be summarised as follows:

Residential Development, Carriganarra, Ballincollig, Cork 226.4.1.1 Bridge Foundations Foundations are required for the abutments.Foundations can be either concrete pad or piled. Pad footings are generally constructed as follows:

• Excavation to a depth below formation level to a suitable founding soil strata.

• Laying a concrete layer, approximately 75 mm thick, at foundation formation level over the full extent of the rectangular foundation to produce a clean, flat plain surface, capable of containing the wet structural foundation concrete. The concrete layer is transported to the site in a concrete wagon.

• Fabricating cages of steel reinforcement, which is done on site, with bars protruding vertically for subsequent concrete pours.

• Placing formwork for the foundation slab. Formwork will be comprised of wooden or metal sheets supported by wooden stakes or other props.

• Transporting concrete to the site and pouring and compacting the concrete, by vibration, to required level, in formwork.

• Leaving the concrete for a period of time to enable it to cure before stripping the formwork to form foundation base.

• Steel reinforcement is fixed for the abutments followed by shutters for the pier.

• Placing concrete for the abutments, including vibration and finish to exposed top of concrete.

• Curing fresh concrete, stripping shutters, treating concrete surface and backfilling over excavations with acceptable material and compacting using a small machine operated compactor.

Piled foundations are generally constructed as follows:

• Carry out preliminary excavations at foundation positions.

• Install foundation piles to a suitable load bearing soil strata – this can either be by driving preconstructed concrete or steel to the required depth with a pile driver, or by using a boring machine to create the void for the pile, placing a casing in the void followed by lowering steel reinforcement and pouring concrete to form the pile.

• Complete excavations to the appropriate formation level.

• Trim projecting piles to required level using mechanical saws or cutting equipment.

• Construction of a reinforcement pile cap upon which piers and abutments will be constructed follows in a similar manner as the construction of the pad footing.

### 7.9.1 Bridge Abutments

• Abutments are concrete seats upon which the Bridge beams can be supported at each end of the Bridge. Construction of abutments is generally undertaken as follows:

• Fixing a grillage of steel reinforcement for abutment walls.

• Erecting vertical formwork for abutment walls.

• Erecting vertical formwork for abutment walls.

• Placing concrete in wall formwork and compacting by vibration.

• Removing shutters, curing concrete, treating exposed surfaces and applying waterproof membrane to faces retaining soil fill – the waterproof membrane can typically be a bitumen coating applied by brush or spray.

• A drain is laid behind the abutments comprising a small pipe with a granular surround.

• Placing and compacting granular fill, behind abutments and wing walls, to road formation level.

• Preparation of seatings for Bridge beams.

### 7.9.3 Bridge Deck

Bridge decks can be several different forms, as follows:

• Concrete deck cast on site (in situ deck).

• Beam and slab, with beams being precast concrete or steel, and the deck being concrete cast in situ.

• In situ decks are generally constructed as follows:

• Erecting formwork on staging to support the wet concrete forming the deck.

• Erecting a steel reinforcement cage within the formwork.

• Pumping concrete into the formwork and compacting by vibration.

• Preparing a finish to the top surface of the wet concrete by smoothing the concrete with a float.

• Leaving the concrete for a period of time to enable it to cure before removing the staging. Decks supported by beams are constructed as follows:

• Taking delivery of precast prestressed concrete or steel Bridge beams and erecting in position over temporary props at pier positions and abutments using cranes.

• Erecting soffit formwork, between and along outer edges of Bridge beams, and side forms for edge parapet beam and diaphragms / transverse beams.

• Fixing inserts for services and additional structural elements.

• Fixing grillage of steel reinforcement for in-situ concrete deck and parapet beam.

• Placing concrete for Bridge deck and in-situ edge beams. This is normally done as staged process. The first stage involves the concrete pour of the main deck sections, followed by the diaphragms / transverse beams and finally the edge beams.

• Curing deck concrete, stripping formwork, treating exposed surfaces.

• Waterproofing top of structural deck.

• Completing services.

• The deck is completed with construction of the verges/footways, and placement of the deck waterproofing system as described above. The final stages of Bridge construction include erecting metal parapet elements and applying pavement markings.

## 7.10 Monitoring

The Site Manager will undertake inspections at all outfalls from the construction works. Inspections will be carried out during and following heavy rainfall events. The Site Manager will organise monitoring of surface water quality at monitoring points SW1, SW2 and SW3, as shown on Figure 4. Samples will be collected monthly and tested for turbidity and suspended

solids. All sample results will be input to a database and compared to baseline monitoring data.

## 8. In-combination effects

Article 6(3) of the Habitats Directive requires that:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. The underlying intention of this in combination provision is to take account of in-combination impacts from existing or proposed plans and projects and these will often only occur over time.

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 area and their potential in-combination impacts are listed in **Table 10**.

The other projects included in **Table 10** will result in increasing the hard paved surfaces within the local catchment and so potentially increase runoff rates and volumes, and flood risk in the Maglin catchment. In reviewing the available documentation for these projects, it is stated that SuDS infrastructure will be installed and discharge from the sites will be limited to Carriganarra rates. Apart from a small section of the sustainable access corridor of the Carriganarra LRD, these projects are located entirely outside the flood extents areas of the Maglin North River. The Carriganarra hydraulic assessment predicts localised changes in flood levels and a slight increase in upstream flood extent, but no material increase in flood extent or risk farther downstream. Runoff from the proposed and permitted developments will be attenuated to their applicable greenfield discharge rates. Accordingly, no significant in-combination effect on downstream flood risk or the hydrological regime of either European site is predicted.

These projects will involve large-scale earthworks, which could result in silt-laden stormwater reaching watercourses. The housing development at Carriganarra (planning Ref. No. 22/41644) and its extension (planning Ref. No. 26/44475) have no on-site watercourses / drains and are distant from the Maglin North River. As such, the risk of silt-laden stormwater reaching the Maglin North is low. Visits to the Carriganarra site during construction works confirms that stormwater runoff is trapped on site by temporary berms, forming silt traps. In the CEMP of the housing development at Maglin LRD (being proposed by O'Flynn Construction - planning Ref. No. 25/44222), Greenfield (being proposed by Murnane & O'Shea Ltd - planning Ref. No. 25/44048) and Cois Caisleán (being proposed by Coleman New Homes Ltd - planning Ref. No. 23/42446) stormwater runoff controls are proposed, including silt traps and siltbusters. Coleman New Homes Ltd are also developing the creche (planning Ref. No. 24/43308), so similar surface water management controls are assumed. As such, no in-combination effect is predicted with regard to water quality.

The potential cumulative impacts of the relevant plan for the area were assessed, which is considered to be the Cork City Development Plan 2022. The assessment of the potential impacts on the environment of the Cork City Development Plan 2022 was undertaken utilising the Strategic Environmental Objectives (SEOs) which are detailed in Table 5.1 of the CDP's Strategic Environmental Assessment. The potential cumulative impacts of the Plan were assessed having regard to these SEO's. Table 5.1 of the SEA identifies the SEO's for 'Water' as being to:

- Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the Water Framework Directive.
- Ensure water resources are sustainably managed to deliver proposed regional and City growth targets in the context of existing and projected water supply and wastewater capacity constraints ensuring the protection of receiving environments.
- Avoid inappropriate zoning and development in areas at risk of flooding and areas that are vulnerable to current and future erosion.
- Integrate sustainable water management solutions (such as SuDS, porous surfacing and green roofs) into development proposals.

Table 7.5 of the CDP's Strategic Environmental Assessment, 'Comparative Assessment of each of the Alternatives against Strategic Environmental Objectives' indicates that Alternative/Scenario 3 'Compact Liveable Growth', the 'Selected Scenario' has positive interactions with the status of the SEO's for 'Water'.

There are no significant in-combination effects predicted for surface water, hydrology or groundwater during the operational phase.

Following mitigation, no adverse impacts from changes in water quality during construction or operation were identified in the plans or projects described above. In summary, no measurable in-combination impacts are likely to Cork Harbour SPA or Great Island Channel SAC from other developments.

# 9. Conclusions

The AA screening concluded, on the basis of objective information and in view of best scientific knowledge, the possibility of significant effects from the proposed project on European sites could not be ruled out and therefore an Appropriate Assessment was required. The AA screening concluded that there was potential for the proposed development to significantly impact the Cork Harbour SPA and Great Island Channel SAC, via water quality impacts during construction and operation.

The NIS has been prepared to inform and assist 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 the European site, Cork Harbour SPA and Great Island Channel SAC.

This NIS has examined and analysed, in light of the best scientific knowledge, with respect to Cork Harbour SPA and Great Island Channel SAC within the potential likely zone of impact of

the proposed development, the potential effect pathways, how these could impact on qualifying species and habitats and whether the predicted effects would adversely affect the integrity of Cork Harbour SPA and Great Island Channel SAC.

Mitigation measures are set out in **Section 7** of the NIS and they ensure that any effects on the conservation objectives of Cork Harbour SPA and Great Island Channel SAC will be avoided during the proposed development such that there will be no risk of adverse effects on the integrity of this European site.

It has been objectively concluded following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted effects from the proposed development and with the implementation of the mitigation measures proposed, that the construction and operation of the proposed development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects. There is no reasonable scientific doubt in relation to this conclusion. The competent authority will make the final determination in this regard.

**Table x. Conclusion summary**

| European site and feature | Relevant attribute/target | Potential effect | Mitigation/design response | Conclusion |
|---|---|---|---|---|
| Great Island Channel SAC – mudflats and sandflats | Habitat area stable or increasing; sediment communities maintained in natural condition | Potential deterioration from sediment, hydrocarbons, nutrients or changed downstream hydrology | Construction pollution controls; controlled greenfield discharge; attenuation; separation distance and intervening catchment; no material downstream flood change | No reduction in habitat area and no alteration of sediment-community distribution |
| Great Island Channel SAC – Atlantic salt meadows | Area and distribution maintained/restored; sediment supply, creek structure and flooding regime maintained | Potential change to water quality, sediment regime or flooding | Same measures; hydraulic modelling demonstrates only local changes around the access corridor and no material downstream flood change | No interference with sediment supply, tidal regime, habitat area or distribution |
| Cork Harbour SPA – SCI birds | Population trend and distribution maintained | Potential indirect effect through deterioration of wetland habitat or prey resources | Prevention of contaminated runoff; controlled operational discharge; WWTP assessment | No material change to supporting habitat, prey availability, population trend or distribution |
| Cork Harbour SPA – wetlands and waterbirds | Wetland area stable and not significantly less than 2,587 ha | Potential deterioration of wetland quality | Water-quality controls and absence of downstream hydraulic effect | No loss or deterioration of wetland habitat |

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# Appendices

## Appendix 1 – Site synopsis

**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.

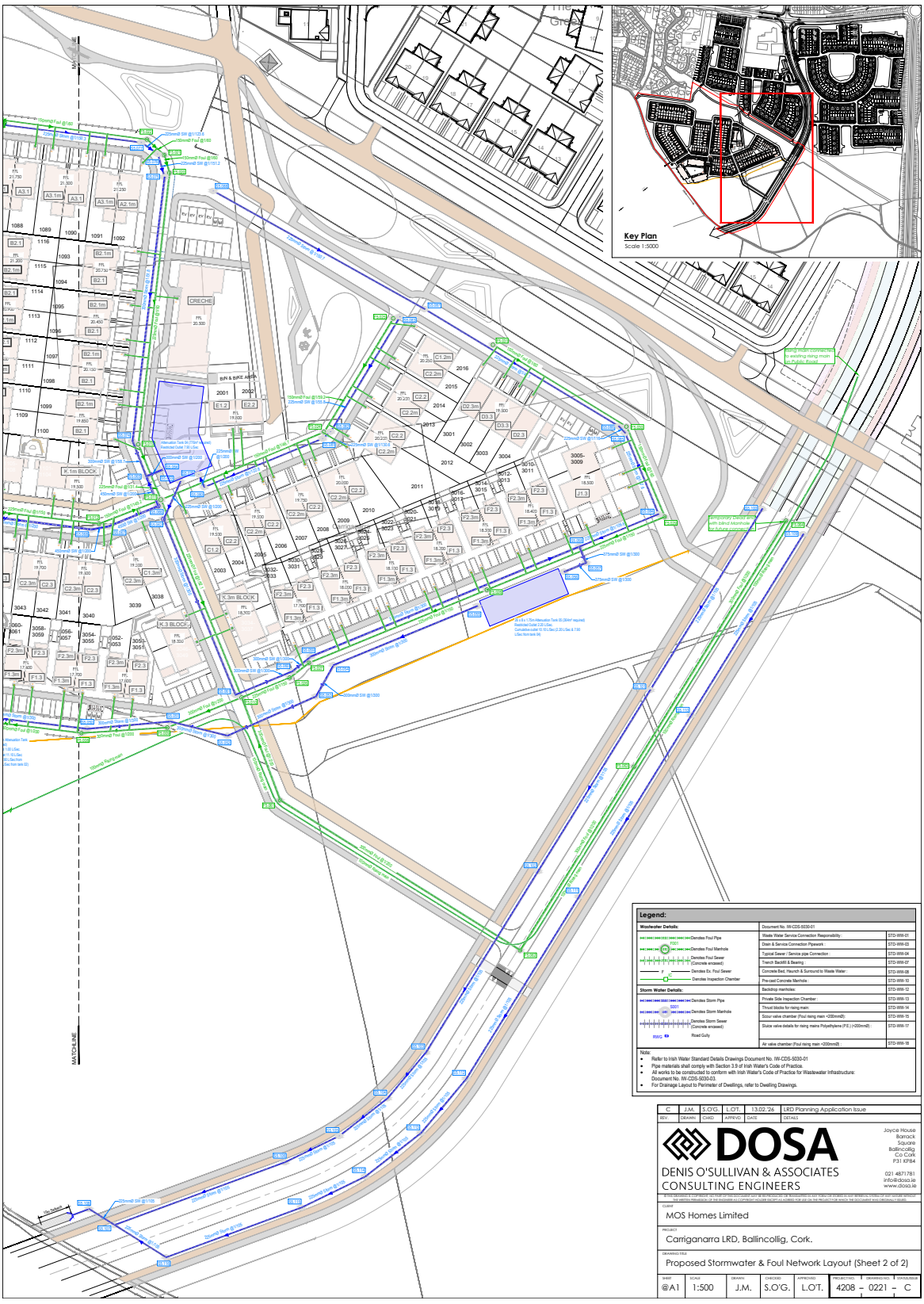
The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

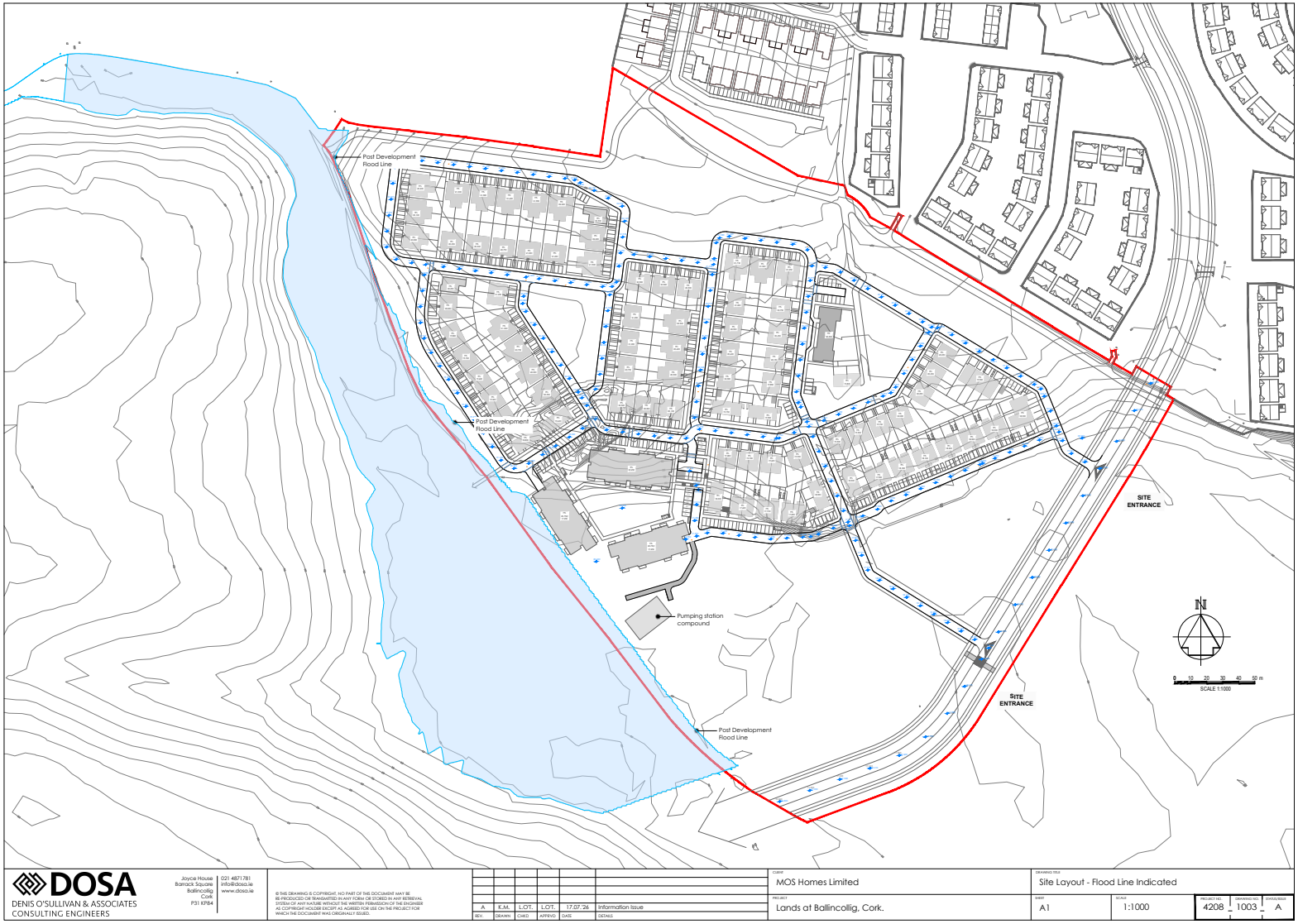
Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the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




Post Development
Flood Line
Post Development
Flood Line
Pumping station
compound
Post Development
Flood Line
SITE
ENTRANCE
SITE
ENTRANCE
N
0 10 20 30 40 50 m
SCALE 1:1000
DOSA
DENIS O'SULLIVAN & ASSOCIATES
CONSULTING ENGINEERS
Joyce House
Barrack Square
Ballincollig
Cork
P31 KP84
021 4871781
info@dosa.ie
www.dosa.ie
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WHICH THE DOCUMENT WAS ORIGINALLY ISSUED.
REV
A
DRAWN
K.M.
CHKD
L.O.T.
APPRVD
L.O.T.
DATE
17.07.'26
DETAILS
Information Issue
CLIENT
MOS Homes Limited
PROJECT
Lands at Ballincollig, Cork.
DRAWING TITLE
Site Layout - Flood Line Indicated
SHEET
A1
SCALE
1:1000
PROJECT NO.
4208
DRAWING NO.
1003
STATUS/REV.
A

## Appendix 3. Uisce Eireann

**CONFIRMATION OF FEASIBILITY**

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Stephen O'Grady

Joyce House
Barrack Square
Ballincollig
Cork
P31 KP84

21 October 2025

**Our Ref: CDS25007329 Pre-Connection Enquiry**
**Carrignarra, Ballincollig, Co. Cork**

Dear Applicant/Agent,

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

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 307 unit(s) at Carrignarra, Ballincollig, Co. 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 Uisce Éireann

  *In order to provide the necessary capacity to facilitate the proposed Development, a connection to the watermain network is required approximately 260m north of the Development on Carriganarra Road. As this connection would traverse private lands, it will be the Applicants responsibility to obtain the relevant required wayleaves and permissions on any 3rd party lands for this connection between the private Development boundary and the connection point to public water infrastructure.*

  *Please note that based on Uisce Éireann's GIS records there is an existing watermain located within the Development boundary. The layout of the development must ensure that this pipe is protected and adequate separation distances are provided between Uisce Éireann infrastructure and any structures on site. If the proposed development requires the diversion of existing infrastructure, the customer will be required to enter into a diversion agreement and grant a deed of easement over the infrastructure to Uisce Éireann's diversions department (diversions@water.ie). To facilitate your*

**Stiúrthóirí / Directors:** Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
**Oifig Chláraithe / Registered Office:** Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

UE / LH / OP448 / 0323

*requirements and avoid delays the customer is advised to engage with Uisce Éireann as early as possible.*

- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann:

  *Please be advised that as part of any future connection application, it will be necessary to engage with Uisce Éireann to ensure that the gravity infrastructure to be provided within this Development is suitably sized and located to facilitate the decommissioning of the existing Heathfield / The Square WWPS. All flows (existing and proposed) through this Development shall discharge to the existing Maglin WWPS.*

  *Alternatively, if the Developer is to propose a connection via any adjacent third-party development lands, this will require agreement between the respective parties to ensure any potential infrastructure is designed accordingly.*

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann 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 Uisce Éireann.

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/

## Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

**This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.**

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,