

# Stage 2: Appropriate Assessment - Natura Impact Statement

## Proposed Housing Development at Knockgriffin, Midleton, Co. Cork

On behalf of  
**Haven Falls Ltd.**



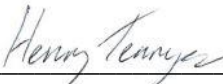


Ground Floor – Unit 3  
Bracken Business Park  
Bracken Road, Sandyford  
Dublin 18, D18 V32Y  
Tel: +353- 1- 567 76 55  
Email: enviro@mores.ie

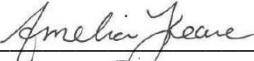
**Title: Stage 2: Appropriate Assessment - Natura Impact Statement, Proposed Housing Development at Knockgriffin, Midleton, Co. Cork, Haven Falls Ltd.**

**Job Number: E1860**

**Prepared By: Henry Tennyson**

**Signed:** 

**Checked By: Amelia Keane**

**Signed:** 

**Approved By: Dyfrig Hubble**

**Signed:** 

### Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	08/11/22	NIS Report	Final	HT	AK	DH

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**Stage 2: Appropriate Assessment - Natura Impact Statement**  
**Proposed Housing Development at Knockgriffin, Midleton, Co. Cork**  
**Haven Falls Ltd.**

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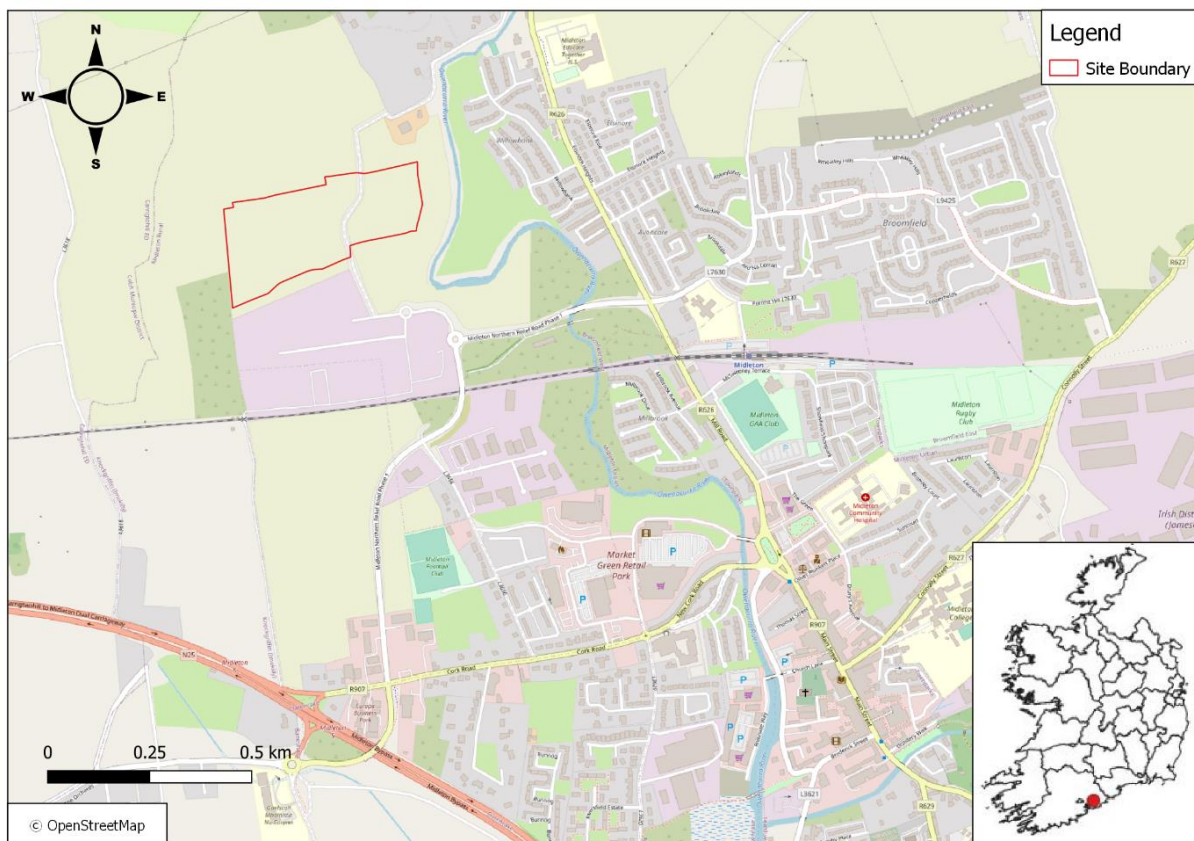
# 1 INTRODUCTION

Malone O'Regan Environmental (MOR) have been commissioned by Haven Falls Ltd. ('the Applicant') to undertake an Appropriate Assessment to assess the likely significant effects, if any, of the proposed housing development ('the Proposed Development') at Waterrock, Midleton, Co. Cork (OS Reference W 86997 74666) on nearby sites with European conservation designations (i.e., Natura 2000 sites).

The Proposed Development will comprise of 330 units and will be located on a greenfield site that is ca.9.49 hectares (ha) in size and located within the townland of Knockgriffin, Co. Cork, northwest of Midleton and is shown in Figure 1-1 ('the Site').

This report has been prepared to inform the Planning Authority with regard to Stage 1 (Screening) and Stage 2 (Appropriate Assessment) of the Proposed Development through the research and interpretation of best scientific, geographic and engineering knowledge and in view of the conservation objectives of the surrounding Natura 2000 sites. This report seeks to determine whether the Proposed Development will, on its own or in-combination with other plans / projects have a significant effect on Natura 2000 sites within a defined radius of the Site. On completion of the Appropriate Assessment Screening Report, it was found necessary to progress to a Stage 2 of the Appropriate Assessment process and prepare a Natura Impacts Statement (NIS).

**Figure 1-1: Site Location**



## 1.1 Statement of Authority

The report was prepared by Mr. Henry Tennyson, Environmental Consultant. Henry is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has a years' experience working in the ecological consultancy sector, including the preparation of Appropriate Assessments, habitat surveys and specialist protected species surveys.

This report was approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Dyfrig has over 15 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Appropriate Assessments.

## 1.2 Regulatory Context

The following guidance documents were adhered to for the preparation of this NIS report:

- *Appropriate Assessment for Screening for Development Management*, The Office of the Planning Regulator [1].
- *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*, European Commission [2];
- *Guidelines for Ecological Impact Assessment in the UK and Ireland*, Chartered Institute of Ecology and Environmental Management [3];
- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* [4];
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities*, DoEGLH [5]; and,
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10*, DoEGLH [6].

This Natura Impact Statement (NIS) was prepared in accordance with Article 33 of the Planning and Development Regulations 2001 and in compliance with the following legislation:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as "The Habitats Directive". This provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC) (better known as "The Birds Directive").

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement):

*"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public"*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the Appropriate Assessment (AA) process to the point, where no adverse impacts on the site(s)

remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

### **1.3 Stages of Appropriate Assessment**

There are four distinct stages to undertaking an AA as outlined in current European Union (EU) and Department of Environment, Heritage and Local Government (DOEHLG) guidance:

#### **Stage 1: Screening**

This process identifies the potential impacts of a plan or project on a Natura site, either alone or in combination with other plans and projects and considers whether these impacts are likely to be significant. If potentially significant impacts are identified the plan or project cannot be screened out and must proceed to Stage 2.

#### **Stage 2: Appropriate Assessment**

Where potentially significant impacts are identified, an assessment of the potential mitigation of those impacts is required; this stage considers the appropriateness of those mitigation measures in the context of maintaining the integrity of the Natura 2000 sites. If potential significant impacts cannot be eliminated with appropriate mitigation measures, the assessment must proceed to Stage 3.

#### **Stage 3: Assessment of Alternatives Solutions**

This process examines alternative ways to achieve the objectives of the plan or project that avoid adverse impacts on the integrity of the Natura 2000 site if mitigation measures are deemed insufficient.

#### **Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)**

Assessment where no alternative solution exists for a plan or project and where adverse impacts remain. This includes an assessment of compensatory measures, where in the case of projects or plans, can be considered necessary for IROPI.



## 2 METHODOLOGY

### 2.1 Determining Zone of Influence

The starting point for this assessment was to determine the Zone of Influence. The Zone of Influence comprises of the area which the Proposed Development may potentially affect the conservation objectives (or qualifying interests) of a Natura 2000 site.

Guidance in Appropriate Assessment of plans and projects in Ireland notes that a distance of 15km is recommended for the identification of relevant European sites [5]. However, guidance from the 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) [6]. For some projects the distance could be greater than 15km, and in some cases less than 100m.

Definition of the zone of influence for the proposed works includes evaluating the following:

- Identification of the Natura 2000 sites that are situated within, in close vicinity or downstream within the zone of influence of the Proposed Development;
- Identification of the designated habitats and species and Conservation Objectives for the identified Natura 2000 sites;
- Identification of the environmental conditions that stabilise and increase the qualifying interests of the Natura sites towards favourable conservation status;
- Identification of the threats/impacts – actual or potential that could negatively impact the conservation objectives for the Natura 2000 sites;
- Identifying the activities of the proposed works that could give rise to significant adverse impacts; and,
- Identification of other plans or projects, for which in-combination impacts would likely have significant adverse effects.

#### 2.1.1 Source-Pathway-Receptor Model

Natura 2000 sites are only at risk from significant effects where a source-pathway-receptor link exists between a Proposed Development and a Natura 2000 sites. This can take the form of a direct impact (e.g. where the Proposed Development is located within / in close vicinity to the boundary of a Natura 2000 site), or an indirect impact where impacts outside of the Natura 2000 site but affect ecological receptors within (e.g. impacts to water quality which can affect estuarine habitats at a distance from the impact source).

The likely effects of the Proposed Development on any Natura 2000 site have been assessed using a source-pathway-receptor model. A source-pathway-receptor model is a standard tool used in environmental assessment [7] [8]. The model comprises of:

- A *source*: any potential impacts from the Proposed Development, e.g. the runoff of sediment / construction pollution.
- A *pathway*: the means or route by which a source can affect the ecological receptor.
- A *receptor*: the qualifying interests and / or special conservation interests of the Natura 2000 sites.

In order to establish the Zone of Influence of the Proposed Development works, the likely key environmental impacts / changes associated with the Proposed Development were determined having regard to the project characteristics set out in Section 3.3 of this report. Zone of Influence for various potential impact pathways are discussed in Section 4.1.

## 2.2 Consultation

Cork County Council was contacted initially on the 23<sup>rd</sup> February 2021 for consultation. Follow up details were supplied to the Council on the 17<sup>th</sup> June 2022 and a LDR meeting was held on the 13<sup>th</sup> July 2022. Following this, Cork County Council issued an Opinion Letter dated 8<sup>th</sup> August 2022, in which the Council noted a number of items that needed to be addressed in the planning application, please see attached in Appendix A.

- Requirement for an Ecological Impact Assessment, which should assess:
  - The loss of trees and hedgerows;
  - Integration of ecological corridors for wildlife;
  - Bat surveys; and,
  - Bird breeding survey.
- The Proposal shall integrate provisions of Green Infrastructure Objectives GI 1401 and GI 14-3.

Following the consultation with Cork County Council, a phone conversation was held with Cork County Council Conservation Officer, Joy Barry, on the 14<sup>th</sup> of September 2022 to follow up on the Opinion Letter in regard to the ecological survey approach.

## 2.3 Desk Based Review

A desk-based review of information sources was completed, which included the following sources of information:

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service (NPWS) website was consulted with regard to the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment [9];
- BirdWatch Ireland – The Irish Wetland Bird Survey (I-WeBS) data was reviewed regard to wintering waterbird population within the vicinity [10].
- The Cork County Council Planning Portal to obtain details about existing / proposed developments in the vicinity of the Site [11];
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to species distributions [12];
- The EPA Envision website was consulted to obtain details about watercourses in the vicinity of the Site [13]; and,
- Historical information of the Site and anecdotal information of the onsite flora and fauna was provided by Paul Moore, the landowner, who has actively farmed the Site since ca.1970 and visits the Site on a regular basis. Mr. Moore previously held the position of Secretary of BirdWatch Ireland – Cork Branch and is currently an active committee member. Mr. Moore has also undertaken bird surveys on behalf of BirdWatch Ireland, including I-WeBS surveys in Cork Harbour SPA.

## 2.4 Field Based Studies

### 2.4.1 Habitat Survey

A habitat survey was undertaken using the Fossitt's *Guide to Habitats in Ireland* [14]. The survey aimed to identify the extent and quality of habitats present on the Site. The initial survey was carried out by two (2No.) suitably qualified MOR Ecologists on the 4<sup>th</sup> of August 2021.

Following this an additional walkover was completed on the 13<sup>th</sup> of October 2021 and an updated survey was completed on the 13<sup>th</sup> of September 2022.

The assessment was extended to also identify the potential for these habitats to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation.

Following consultation with Cork County Council, it was deemed appropriate to undertake bat surveys on the 18<sup>th</sup> August 2022 and 14<sup>th</sup> September 2022. Additionally, static monitoring was undertaken using a passive bat detector from 18<sup>th</sup> of August 2022 to 13<sup>th</sup> of September 2022. Furthermore, a breeding bird survey and breeding bird habitat assessment was undertaken on 18<sup>th</sup> of August 2022.

## **2.4.2 Bird Habitat Assessment**

A breeding bird and habitat assessment was undertaken on 18<sup>th</sup> of August 2022 by a suitably qualified and experienced MOR ecologist.

### **Breeding Bird Survey**

During this survey all the field boundaries located within the Site boundary were walked and all open areas were observed for the presence of birds. All birds were recorded using a standard BTO code through sight, sound and optical equipment, such as binoculars (to minimise disturbances to birds).

During the survey, the behavioural activity of the recorded birds were noted using the BTO breeding status codes [15]. Birds that displayed non-territorial behaviours were also recorded (i.e., birds that were foraging and not calling, birds that were loafing, etc.). Birds flying over the Site were not recorded unless the bird was clearly associated with the Site (i.e., had been flushed out by the surveyor).

Birds were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criteria for each classification is described below:

- Non-breeding – Birds that were flying over the Site, birds that were foraging and not calling and birds that were loafing;
- Possibly Breeding – Birds observed in suitable nesting habitat and displaying either territorial and / or courtship behaviours, nest building behaviours or observed visiting a possible nest; and
- Confirmed Breeding – Birds observed either on nests or carrying faecal sac or food, sighting of a nest with eggs / chick, used nests, eggshells or recently fledged young.

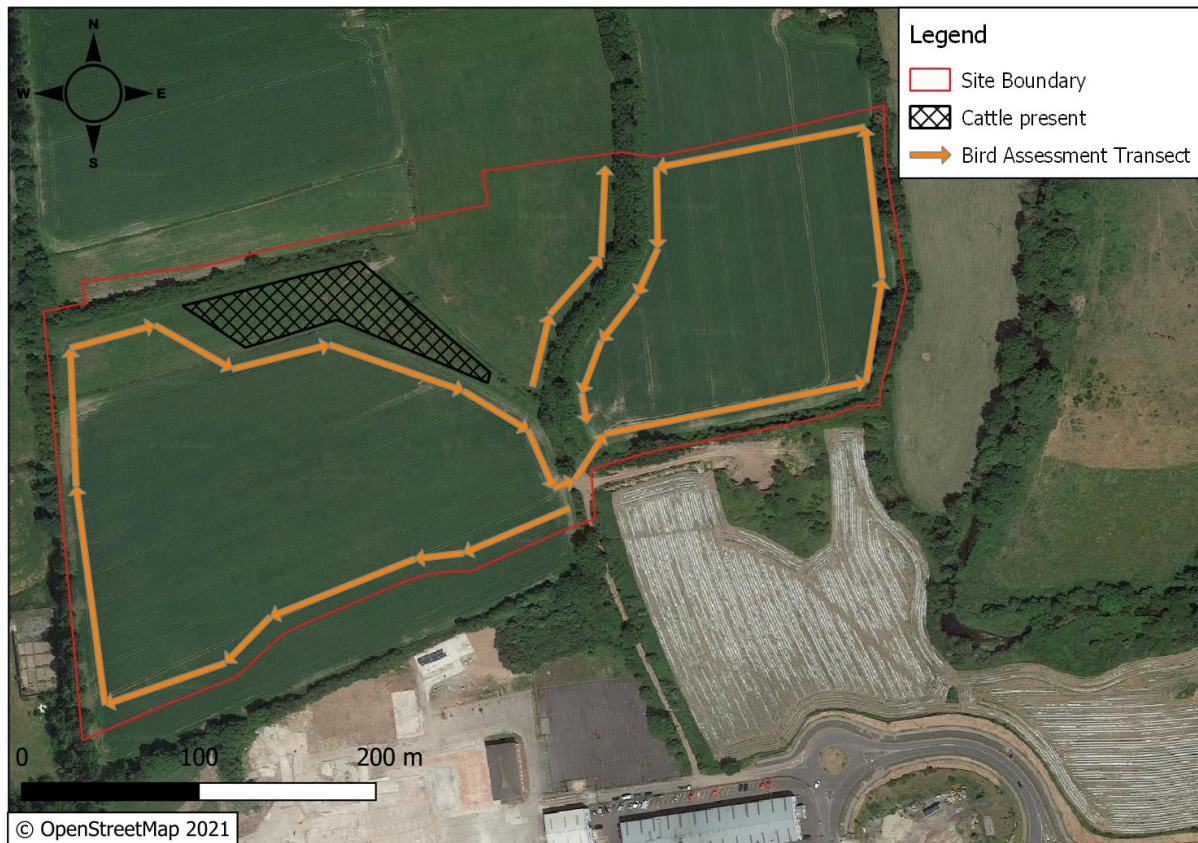
The survey assessed the Site for any evidence of active nests or trace nests to determine the presence of nesting birds that may have utilised the Site earlier in the breeding season. During this assessment, all hedgerows / treelines were surveyed using binoculars to determine if any nests were located within the higher reaches of the habitat, surveyors also manually assessed the hedgerows / treelines by going into the hedgerows and carefully looking through the foliage. Areas of tall grass / scrub were surveyed via transects across the area carefully looking for any remnants of ground nesting bird species.

### **Breeding Bird Habitat Assessment**

During the survey, all field boundaries were walked and the habitats onsite were fully assessed for their potential to provide suitable nesting habitat. Areas of dense hedging, scrub habitat, wet grassland habitat, tall grassland habitat and onsite water features were noted. The flora species composition of the onsite habitats were noted to determine suitable species for nesting and foraging bird species.

Any active or trace nests identified onsite were noted and the habitat in which they were located was deemed suitable for nesting bird species.

Figure 2-1: Bird Habitat Assessment Transect



### 2.4.3 Other Species

In addition, as part of the overall ecological assessment for the Site, an assessment was carried out for the potential of the Proposed Development to support any other species considered to be of value for biodiversity, including those that were identified as occurring locally by the desktop study. This information was used as part of the NIS to inform the assessment of potential adverse effects on both Annex 1 Species and Habitats identified as part of the study.

### 2.5 Survey Conditions and Limitations

During the breeding bird survey and habitat assessment on 18<sup>th</sup> of August, a section of the Site was not accessible due to the presence of cattle, as shown in Figure 2-1. However, this area was visually assessed with binoculars by the surveyors from a safe and appropriate distance. There were no other limitations to the surveys.

### 3 DESCRIPTION OF THE PROJECT

#### 3.1 Site Context

The Site is ca.9.49 hectares (ha) and located within the townland of Knockgriffin, Midleton, Co. Cork. The Site is accessed off a local tertiary road via the Midleton Northern Relief Road and the R626 Mill Road. The Site is characterised by hedgerows / treelines which bound the Site to the south, east and west. There is an additional ca.190m of hedgerow along the northern boundary of the Site which adjoins the western field boundary. A lane enclosed by a mature hedgerow / treeline runs through the central region of the Site bisecting two (2No.) agricultural fields being utilised for arable crops. To the northwest of this laneway lies an additional two (2No.) improved agricultural grassland fields divided by a drainage ditch. The drainage ditch onsite runs along the northern hedgerow before traversing diagonally to the southeast corner of the grassland, diverting under the laneway, and emerging along the southern boundary of the eastern arable field.

The immediate area surrounding the Site is dominated by agricultural fields with the exception of an industrial / commercial area to the south of the Site which is part of the Nordic Enterprise Park. The wider area surrounding the Site is characterised by urban and residential areas, agricultural fields and the Owenacurra River which flows to the east of the Site boundary. Midleton Railway station is also located across the river, approximately 800m southeast of the Site. The railway line runs directly south of the boundary, parallel to Nordic Enterprise Park.

The Site is located in the northwest region of Midleton town on lands zoned for ‘*residential purposes*’ under the Cork County Development Plan 2022-2028 [16]. The wider area surrounding the Site is zoned as “*Residential, Community*” and “*Green Infrastructure*”. Refer to Table 3-1 below for a breakdown of adjacent land uses and Figure 3-1 for Site context.

**Table 3-1: Adjacent Land Use**

<b>Boundary/Direction</b>	<b>Land Use</b>
<i>North</i>	<i>Agricultural Land</i>
<i>South</i>	<i>Commercial premises (Nordic Enterprise Park)</i>
<i>West</i>	<i>Agriculture and some Residential Properties</i>
<i>East</i>	<i>Owenacurra River, some Agricultural Land and Residential Properties</i>

Figure 3-1: Site Context



### 3.2 Watercourses within the Vicinity of the Site

The Site is located within the Lee, Cork Harbour and Youghal Bay catchment [Catchment\_ID: 19] and the Owenacurra\_SC\_010 subcatchment [Subcatchment\_ID: 19\_13] [17].

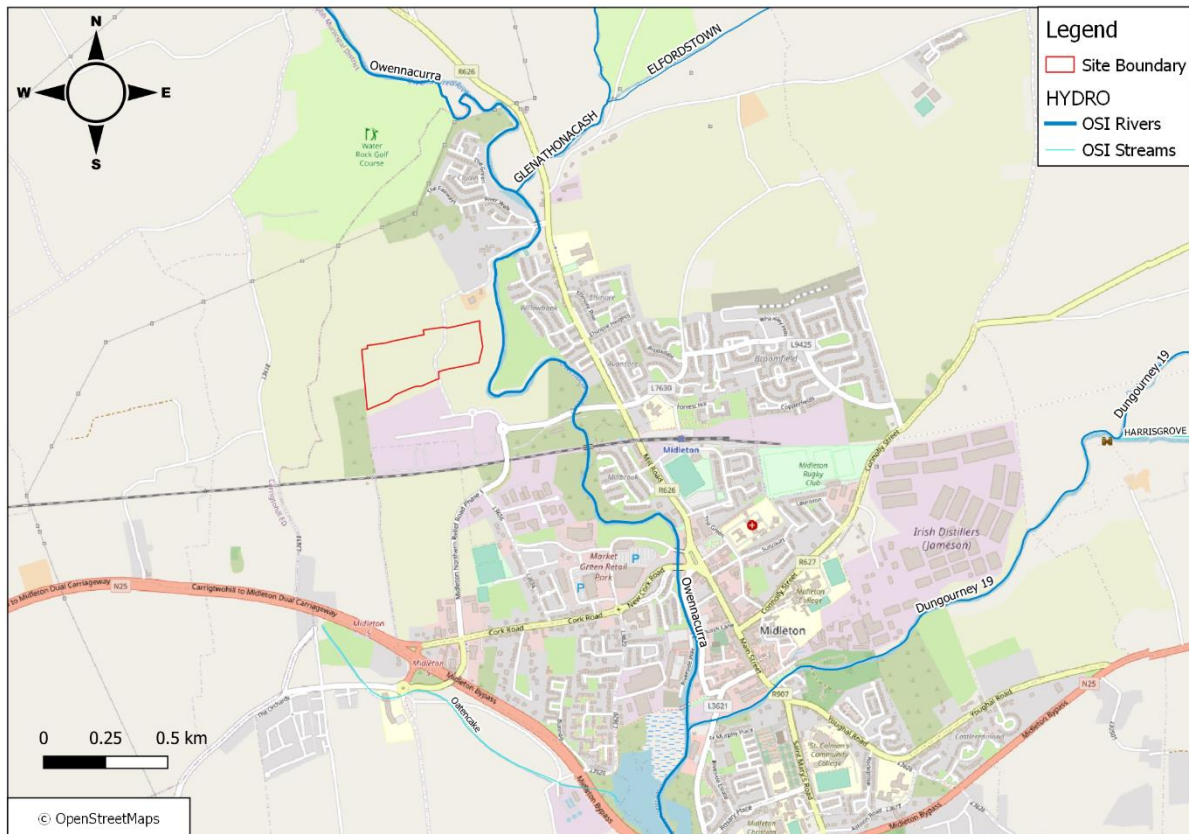
The nearest hydrological feature to the Site is the Owennacurra River, which is located ca.80m east of the Site at its closest point. The Owennacurra River flows in a southern direction for ca.2.3km before discharging into the Owennacurra Estuary, where it flows a further ca.3.5km into the North Channel and Great Island Estuary. The North Channel and Great Island Estuary continues for a further 3.7km before discharging into Cork Harbour.

Under the Water Framework Directive (WFD) 2000/60/EC, the EPA classifies the status and the risk of not achieving a good water quality status for all waterbodies in Ireland. According to the WFD Status 2013-2018, the most up-to-date data at the time of writing this report, the Owennacurra Estuary, the North Channel and Great Island Estuary and Cork Harbour, all have a 'moderate' water quality status, and are considered to be 'at risk' of not achieving good water quality status [17].

It should be noted that the immediate tributaries draining into these waterbodies are also considered to be 'at risk' and have either been unassigned a water quality status or are classified as having 'moderate' water quality [17].

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-1 below.

Figure 3-2: Watercourses in the Vicinity of the Site



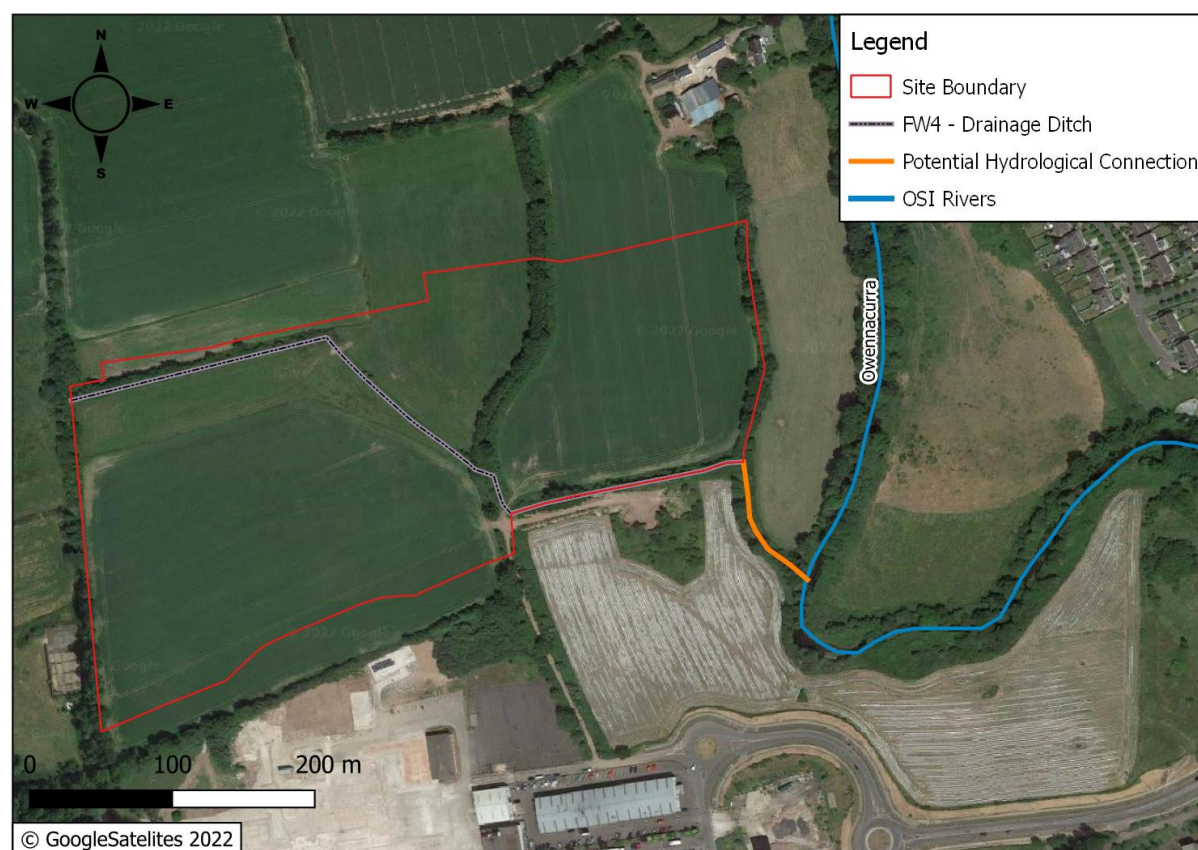
### 3.2.1 Drainage

The Site is bordered by a drainage ditch along the northern boundary of the Site and bisects the Site through the central region. At the time of the first survey the drainage ditch was dry, however, during the second survey the drainage ditch was wet with a small amount of water but there was no flow of water and the water appeared stagnant. Therefore, it can be concluded that the water level within the drainage ditch likely seasonally fluctuates.

Given the topography of the Site and following a review of aerial imagery of the drainage ditch network within the surrounding area of the Site, it is considered likely that this ditch connects to the Owennacurra River to the east which discharges to the Owennacurra Estuary.

The location of the onsite drainage ditches are illustrated in Figure 3-3 below.

Figure 3-3: Potential Hydrological Connection to the Owennacurra River



### 3.3 Description of the Proposed Development

The Proposed Development will comprise the following components;

- The construction of 330 no. residential units;
- A neighbourhood centre to include creche, medical centre, pharmacy and café;
- The provision of landscaping and amenity areas and all associated infrastructure; and,
- Services including a new vehicular and pedestrian/cycle access point on to the permitted Services Link Corridor, landscaping, roads, parking, lighting and drainage at Knockgriffin, Middleton, Co. Cork.

The proposed Site layout is presented in Appendix B.

#### 3.3.1 Drainage

This section sets out a description of both the storm and foul water drainage from the Proposed Development. It is proposed to connect to existing public infrastructure adjacent to the Site. Further details can be found in the Engineering Report prepared by O'Shea Leader Consulting Engineers and submitted as part of the application.

#### 3.3.2 Surface Water

The surface water drainage design for the Proposed Development has been carried out in accordance with SuDS and the Department of the Environment's '*Recommendations for Site Development Works for Housing Areas*,' refer to the OSL Engineering Report for further details. During the operational phase, surface water from the Site will be collected and attenuated onsite, with a peak discharge rate of 2l/s/ha for the 1 in 100 year rainfall event



including an allowance for climate change. The existing drainage ditch onsite, running in a NW-SE direction will be culverted to the same flow rate, using a 600mm pipe. This drainage ditch out-falls at Owenacurra River and will eventually flow into Cork Harbour.

Surface water will pass through a grit sump and class 1 hydrocarbon interceptor before entering an attenuation tank, which is located to the north of the Site. The attenuation tank will discharge to the existing surface water sewer network which eventually discharges into Cork Harbour.

The remainder of the Site will be attenuated through permeable asphalt parking spaces with a permeable stone base which has also been designed for a 100-year rainfall event with a 20% allowance for climate change.

A swale will be constructed along the southern border of the Site (See Appendix C&D).

Further information can be found in the Engineering Report prepared by O'Shea Leader Consulting Engineers and submitted with this application. Refer to Appendix C for drainage layout drawings

### **3.3.3 Foul Drainage**

A Pre-Connection Enquiry was submitted to Irish Water (Ref: CDS20001567). In response, Irish Water confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Irish Water Network could be facilitated following the completion of the network extension project to Carrigtwohill Wastewater Treatment Plant (WWTP) which is anticipated to be completed in 2023 (subject to change). This network extension project will involve the construction of a pump station and rising main to Carrigtwohill WWTP.

Further details can be found in the Engineering Report prepared by O'Shea Leader Consulting Engineers and submitted with this application.

### **3.3.4 Site Access**

The Site will be accessed from the existing Nordic Enterprise Park via the Midleton Northern Relief Road. Future access to the Site will be via a new permitted link road in line with the Waterrock LIHAF initiative, as outlined in the Construction Environment & Waste Management Plan prepared by O'Shea Leader Consulting Engineers and submitted with this application

### **3.3.5 Landscaping**

A Landscape Plan has been prepared by Derek Howlin Landscape Architect as part of the overall planning application. The landscape plan will include:

- The retention of existing trees and hedgerows where their future is sustainable. Where it is not possible to retain trees and hedgerows, mitigation planting will take place, as outlined in the Landscape Plan;
- A sensitive lighting strategy will be implemented as part of the Proposed Development to avoid disturbance to nocturnal species;
- Proposed new tree and hedgerow planting to compliment existing planting types throughout the area and make a positive contribution to the existing landscape character of the area; and,
- The protection and enhance of existing trees and hedgerows that are to be retained from unnecessary damage.

As outlined in the Landscape Plan there will be a net gain of 666No. trees planted as part of the proposed development and a net gain of 86m of hedgerow planted.

Full details can be found in the Landscape Plan accompanying this application.

### 3.4 Construction Procedure

During the construction phase, the methods of working will comply with all relevant legislation and best practice guidelines in reducing the environmental adverse effects of the works. Although construction phase adverse effects are generally of a short-term duration and are localised in nature, the adverse effects will be reduced as far as practicable through compliance with current construction industry guidelines.

A detailed Construction Environmental Management Plan (CEMP) will be prepared and submitted to Cork County Council for approval in advance of the works. The following Construction Industry Research and Information Association (CIRIA) guidance will be referred to and will be adhered to during the construction phase of the project to prevent water pollution:

- C532 – Control of Water Pollution from Construction, Guidance for Consultants and Contractors [18];
- CIRIA C741- Environmental Good Practice on Site (4<sup>th</sup> edition) [19]; and,
- All works will be undertaken in accordance with the ‘Requirements for the Protection of Fisheries Habitat during Construction and Development’ [20].

It is envisaged that construction works will take approximately four (4No.) years to complete. Working hours will generally be restricted to between 07:00 to 19:00 Monday to Friday and between 07:00 and 16:00 on Saturdays. No construction work will take place on Sundays or Bank Holidays. In addition, no construction work will take place at night-time except where safety concerns necessitate it or if agreed in advance with the Planning Authority.

Refer to the Construction & Environmental Management Plan prepared by O’Shea Leader Consulting Engineers which has been submitted with this application for further details.

#### 3.4.1 Duration of Works

It is envisaged that construction works will take approximately four (4No.) years to complete. Working hours will generally be restricted to between 07:00 to 19:00 Monday to Friday and between 07:00 and 16:00 on Saturdays.

No construction work will take place on Sundays or Bank Holidays. In addition, no construction work will take place at night-time except where safety concerns necessitate it or if agreed in advance with the Planning Authority.

Refer to the Construction & Environmental Management Plan prepared by O’Shea Leader Consulting Engineers which has been submitted with this application for further details

#### 3.4.2 Earthworks

Earthworks will include the excavation of level platforms and foundations for each residential building and the importation of stone material for access roads etc. The design of road levels and finished floor levels has been carried out in such a way as to minimize cut/fill type earthworks operations

### 3.5 Monitoring Works

An ecological clerk of works (ECoW) will inspect the Sites in advance of works commencing and will undertake Site inspections as required during the works, to ensure that they will be completed in line with the mitigation measures detailed within this NIS, the EclA and the CEMP.

In addition, the ECoW will either deliver or provide the resident engineer with sufficient environmental information to deliver a Site induction to all personnel working onsite.

## 4 IDENTIFICATION OF NATURA 2000 SITES

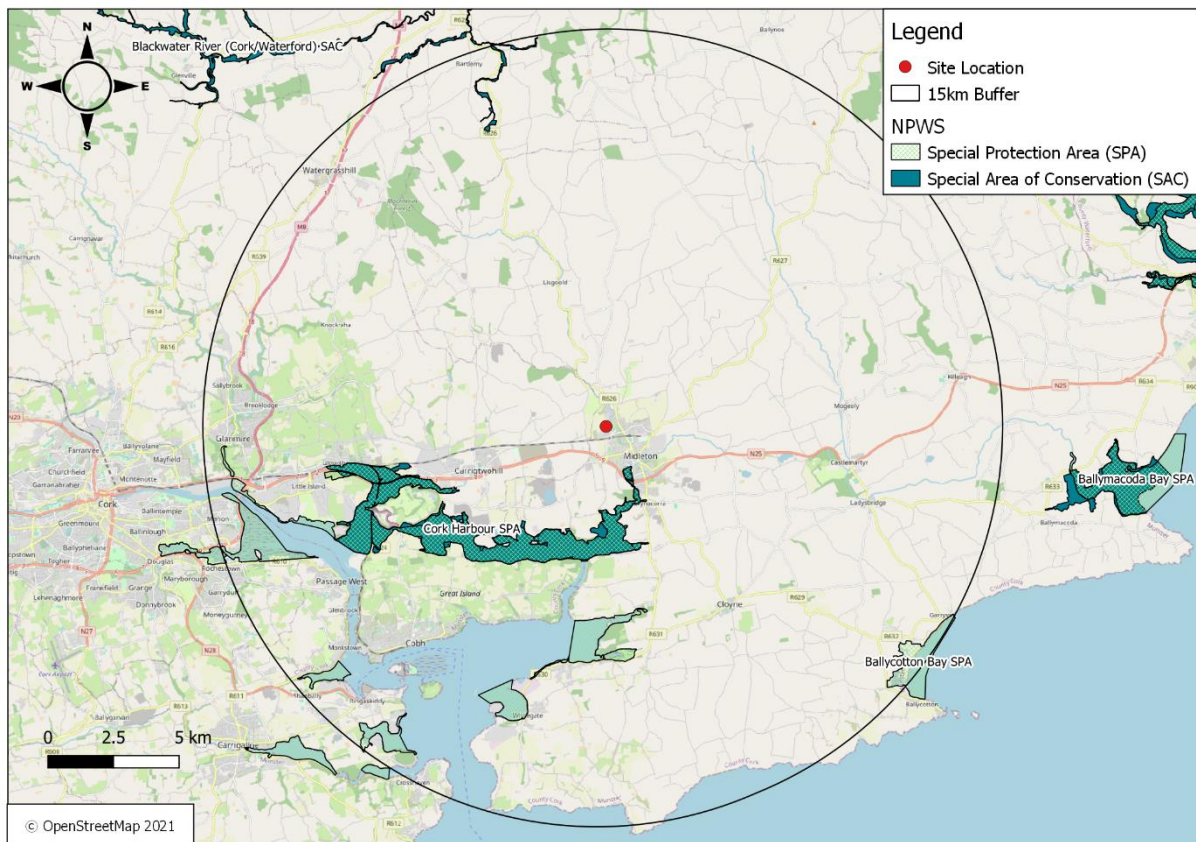
In accordance with the European Commission Methodological Guidance [4] a list of European sites that can be potentially affected by the Proposed Development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government [5] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely significant effects of the project. The key variables determining whether or not a particular Natura 2000 site is likely to be negatively affected by a project are:

- The physical distance from the project to the Site;
- The presence of impact pathways;
- The sensitivities of the ecological receptors; and,
- The potential for in-combination effects.

All SPAs and SACs within 15km have been considered to assess their ecological pathways and functional links. As acknowledged in the OPR guidelines [1], few projects have a zone of influence this large, however the identification of Natura 2000 sites within 15km has become widely accepted as the starting point for the screening process. For this reason, all SPAs and SACs in 15km have been identified for consideration as part of the screening.

There are four (4No.) European sites located within 15km of the Site - these are identified in Figure 4-1 and Table 4-1.

**Figure 4-1: Site Location and Natura 2000 Designated Sites within 15km**



**Table 4-1: European Designated Sites within 15km of the Site**

Site Name	Site Code	Distance (km)	Direction from the Site
<b>Special Area of Conservation (SAC)</b>			
Great Island Channel SAC	001058	1.7km	S
Blackwater River (Cork / Waterford) SAC	002170	12.1km	NW
<b>Special Protected Areas (SPA)</b>			
Cork Harbour SPA	004030	1.7km	S
Ballycotton Bay SPA	004022	13.9km	SE

#### Habitat Loss / Degradation

The Site is located within an area of improved agricultural grassland and arable land. However, the Site is hydrologically linked to the Great Island SAC via an onsite drainage ditch and the Owennacurra River, ca.2.4km downstream of the Site. Due to the hydrological connection there is potential for impacts associated with designated habitat loss / degradation as a result of the Proposed Development and further consideration will be given to the Great Island Channel SAC.

#### Water Quality Impairment

Potential water quality impacts would typically be associated with the release of sediment and other pollutants to surface water during the construction phase of the Proposed Development, therefore the ZOI would be considered to include the receiving waterbodies adjacent to and downstream of the Site during the construction phase within 5km. Therefore, given the hydrological connection to Owennacurra River and subsequently Cork Harbour, further consideration will be given to the potential impacts associated with water quality from the Proposed Development.

#### Air Quality Impairment

According to the Institute of Air Quality Management (IAQM) Guidelines, the potential adverse effects from dust occur to ecological receptors from dust associated with construction works within a distance of 50m from the boundary of the Site [21]. No impacts associated with dust will as a result of the Proposed Development given the distance separating the Site from the Natura 2000 sites.

#### Noise / Disturbance

Noise from the construction activity has the potential to cause disturbance to resting, foraging and commuting qualifying species of the Natura 2000 sites. As there will be no piling or in-river works required for the Proposed Development, there is no potential for underwater noise impacts beyond the immediate vicinity of the Site. Individual species will provoke different behavioural responses to disturbances at different distances from the source of disturbance.

- Transport Infrastructure Ireland (formally the National Roads Authority) has produced a series of best practice planning and construction guidelines for the treatment of certain protected mammal species (i.e. otter), which indicate that disturbance to terrestrial mammals would not extend beyond 150m [22]; and,
- Studies have noted that different types of disturbance stimuli are characterized by different avifaunal reactions, however, in general a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl [23].

The Zol for noise / disturbance is therefore established as the Site with a 300m buffer.

Although none of the habitats onsite are suitable for designated bird species for Cork Harbour SPA and the Site is located further than 300m of the SPA. Therefore, this Natura 2000 site has been scoped in for further consideration.

#### Identification of Natura 2000 Sites

The Site is not located within or directly adjacent to any Natura 2000 sites, however, the boundaries of four (4No.) are located within 15km from the Site.

Given the distance, intervening lands and lack of impact pathways between the Site and Blackwater River (Cork / Waterford) SAC and Ballycotton Bay SPA, these Natura 2000 sites have been screened out from further consideration.

The following Natura 2000 sites listed in Table 4-2 have been screened in for further consideration to assess potential adverse effects resulting from the Proposed Development.

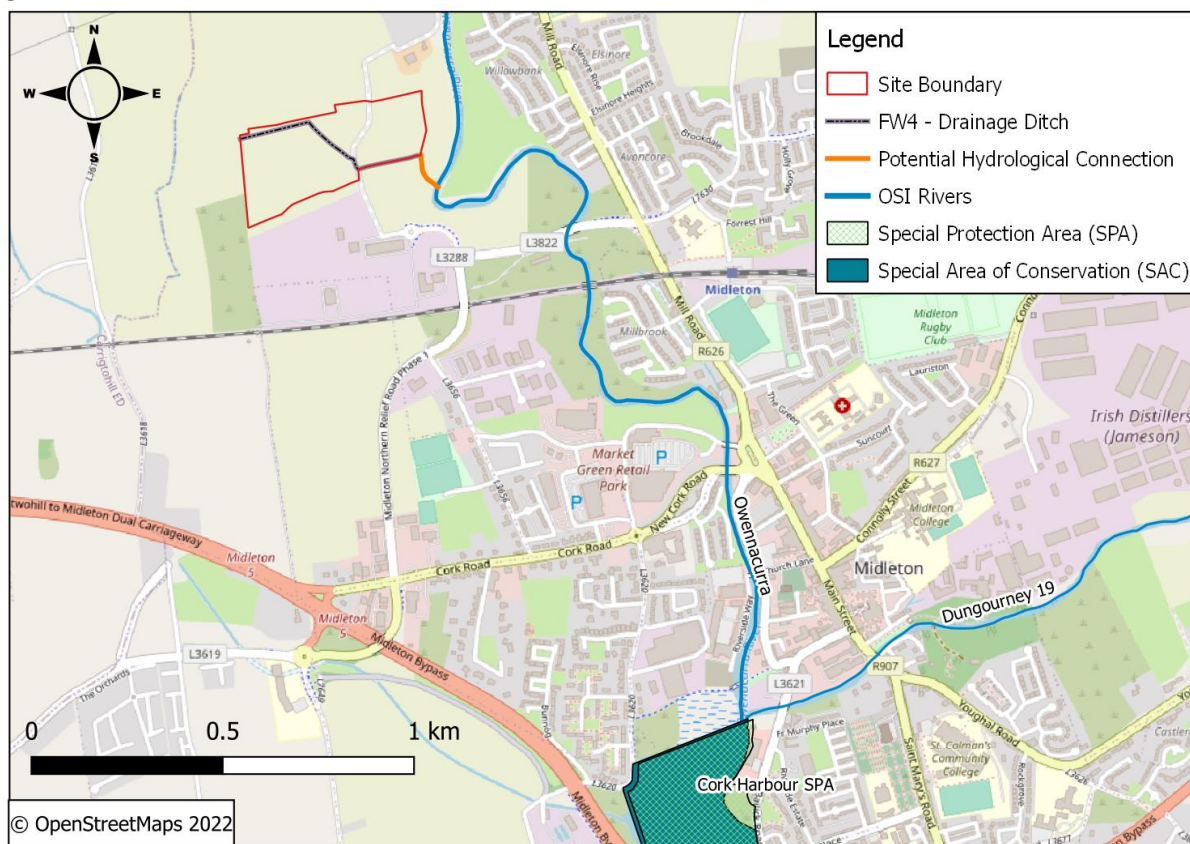
**Table 4-2: European Designated Sites within Zol**

Site Name	Code	Distance at closest point and source-pathway-receptor link
Great Island SAC	001058	The Site is located 1.7km north of the Great Island SAC and located ca.2.4km upstream of the SAC, see Figure 4-2. Given the close proximity and hydrological connection of the Site to the SAC, potential disturbance effects to designate habitats will be taken forward for further consideration.
Cork Harbour SPA	004030	The Site is located 1.7km north of the Cork Harbour SPA and located ca.2.4km upstream of the SAC, see Figure 4-2. Therefore, potential disturbance effects to the designated species will be taken forward for further consideration.

The screening assessment for individual designated habitats and species for each of the screened in Natura 2000 sites and the potential for them to be adversely affected by the Proposed Development are presented in Section 6 below.

Further information on the screened in Natura 2000 sites is provided below.

**Figure 4-2: Hydrological Connection between the Site and Great Island SAC and Cork Harbour SPA**



#### 4.1 Great Island Channel SAC (Site Code: 001058)

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest.

The main habitats of conservation interest are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Both of these habitats are listed on Annex I of the E.U. Habitats Directive (Refer to Table 4-2).

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*, and *Scrobicularia plana* as well as green algal species particularly *Ulva lactuca* and *Enteromorpha* spp. The saltmarshes scattered throughout the SAC support a number of species including Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*) and Common Saltmarsh-grass (*Puccinellia maritima*).

The site is extremely important for wintering waterfowl and supports large populations of Shelduck, Teal and Grey Plover. In addition, much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

The main land use within the site is aquaculture in particular oyster farming. The greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

**Table 4-2: Qualifying Annex I Habitats for the Great Island Channel SAC**

Qualifying Habitats	Code
Mudflats and sandflats not covered by seawater at low tide	1140

Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )	1330
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## 4.2 Cork Harbour SPA (Site Code: 004030)

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

The site is a SPA under the E.U. Birds Directive, of special conservation interest for a number of species including Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail and Shoveler (Refer to Table 4-3). 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 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, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern.

Cork Harbour is also a Ramsar Convention site, part of Cork Harbour SPA, and is a Wildfowl Sanctuary.

**Table 4-3: Qualifying Annex I Species of Birds for Cork Harbour SPA**

Species Name	Scientific Name	Code
Little Grebe	<i>Tachybaptus ruficollis</i>	A004
Great Crested Grebe	<i>Podiceps cristatus</i>	A005
Cormorant	<i>Phalacrocorax carbo</i>	A017
Grey Heron	<i>Ardea cinerea</i>	A028
Shelduck	<i>Tadorna tadorna</i>	A048
Wigeon	<i>Anas penelope</i>	A050
Teal	<i>Anas crecca</i>	A052
Pintail	<i>Anas acuta</i>	A054
Shoveler	<i>Anas clypeata</i>	A056
Red-breasted Merganser	<i>Mergus serrator</i>	A069
Oystercatcher	<i>Haematopus ostralegus</i>	A130
Golden Plover	<i>Pluvialis apricaria</i>	A140
Grey Plover	<i>Pluvialis squatarola</i>	A141
Lapwing	<i>Vanellus vanellus</i>	A142
Dunlin	<i>Calidris alpina</i>	A149
Black-tailed Godwit	<i>Limosa limosa</i>	A156

Species Name	Scientific Name	Code
Bar-tailed Godwit	<i>Limosa lapponica</i>	A157
Curlew	<i>Numenius arquata</i>	A160
Redshank	<i>Tringa totanus</i>	A162
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A179
Common Gull	<i>Larus canus</i>	A182
Lesser Black-backed Gull	<i>Larus fuscus</i>	A183
Common Tern	<i>Sterna hirundo</i>	A193
Wetland and Waterbirds		A999

### 4.3 Conservation Objectives

European and national legislation places a collective obligation on Ireland and its citizens to maintain a favourable conservation status at areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing;
- The specific structure and functions which 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 as defined below.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future; and,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Conservation objectives for all identified Natura 2000 SAC Sites are as follows:

*'To maintain or restore the favourable conservation condition of the Annex I habitat(s) and the Annex II species for which the SAC has been selected.'*

The full reports for the conservation objectives for the Great Island Channel SAC<sup>1</sup> and Cork Harbour SPA<sup>2</sup> can be found on the NPWS website.

<sup>1</sup> [Great Island Channel SAC: Conservation Objectives \(npws.ie\)](https://www.npws.ie)

<sup>2</sup> [Cork Harbour SPA: Conservation Objectives \(npws.ie\)](https://www.npws.ie)



## 5 STUDY RESULTS

### 5.1 Desk Based Study Results

Table 5-1 provides a summary of records of legally protected or otherwise notable species protected under the Cork Harbour SPA that occur within a 2km grid square of the Site [12]. CIEEM's guidelines recommend that consideration be given to the biodiversity conservation value of the species that occur within this zone of influence (as appropriate) [3].

**Table 5-1: NBDC Records for Species Designated for the Cork Harbour SPA within 2km of the Site**

Common Name	Scientific Name	Date of last record	Designation
<b>Cork Harbour SPA Designated Bird Species</b>			
Bar-tailed Godwit	<i>Limosa lapponica</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex I Bird Species Birds of Conservation Concern Amber List
Black-tailed Godwit	<i>Limosa limosa</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Redshank	<i>Tringa totanus</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Common Shelduck	<i>Tadorna tadorna</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Dunlin	<i>Calidris alpina</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex I Bird Species Birds of Conservation Concern Amber List
Eurasian Curlew	<i>Numenius arquata</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section II Bird Species Birds of Conservation Concern Red List
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Eurasian Teal	<i>Anas crecca</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III Section II Bird Species Birds of Conservation Concern Amber List

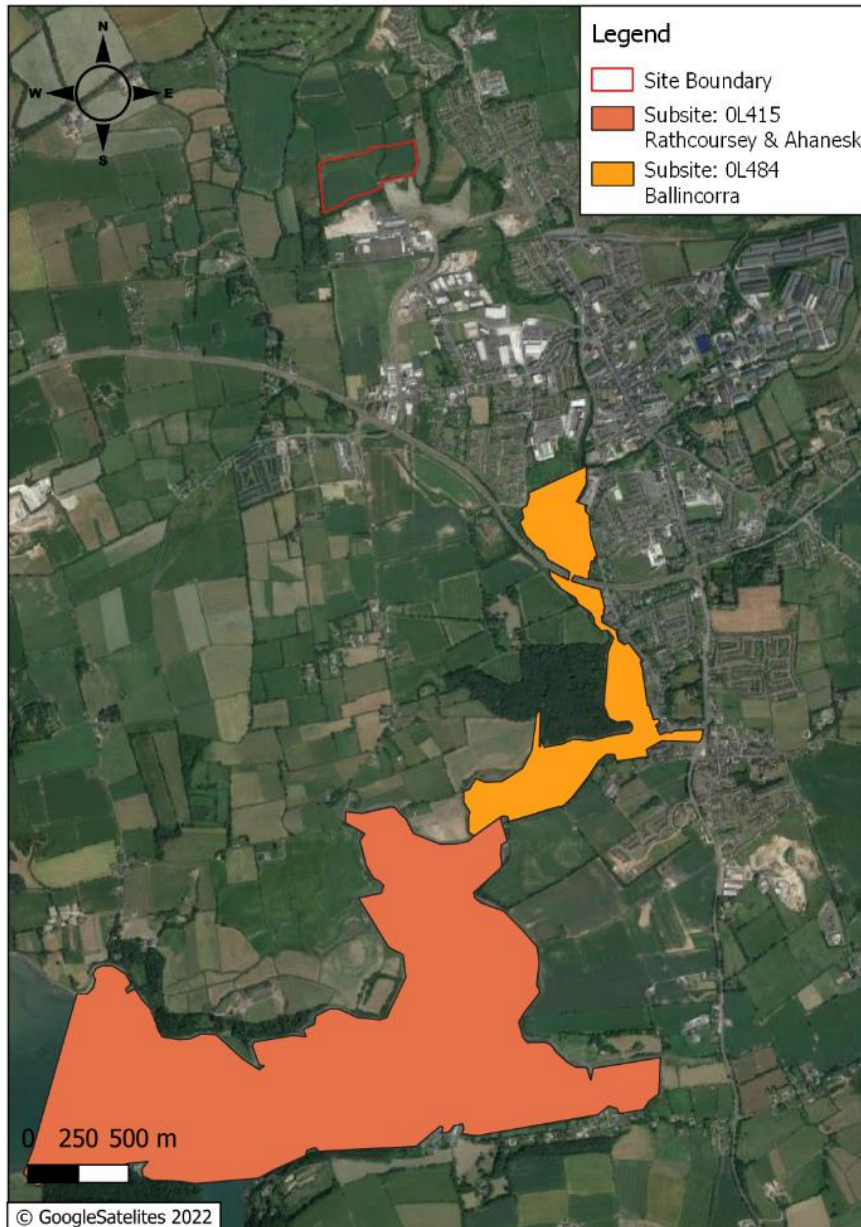
Common Name	Scientific Name	Date of last record	Designation
Eurasian Wigeon	<i>Anas penelope</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III and Section II Bird Species Birds of Conservation Concern Amber List
Great Cormorant	<i>Phalacrocorax carbo</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Great Crested Grebe	<i>Podiceps cristatus</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Little Grebe	<i>Tachybaptus ruficollis</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mew Gull	<i>Larus canus</i>	16/11/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Northern Lapwing	<i>Vanellus vanellus</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II Section II Bird Species Birds of Conservation Concern Red List
<b>Wetland and Waterbirds Species</b>			
Arctic Tern	<i>Sterna paradisaea</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex I Bird Species Birds of Conservation Concern Amber List
Common Greenshank	<i>Tringa nebularia</i>	05/12/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mallard	<i>Anas platyrhynchos</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II Section I and Annex III and Section I Bird Species
Little Egret	<i>Egretta garzetta</i>	05/12/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex I Bird Species

\*Note that only species recorded within the past 10 years were included in this table.

### 5.1.1.1 I-WeBS Data – Wintering Bird Information

In order to understand the potential assemblages of wintering bird populations that tend to occur within the vicinity of the Site, a data request was submitted to the Irish Wetland Bird Survey (I-WeBS), which is coordinated by BirdWatch Ireland and under contract to the NPWS. The data request was for available data from the nearest two (2No.) subsites of Cork Harbour: the Ballynacorra (Subsite Code: 0L484), located ca.1.7km southeast of the Site, and the Rathcoursey & Ahanesk (Subsite Code: 0L415), located ca.2.9km south of the Site, as shown in Figure 4-4.

Figure 5-1: I-WeBS Subsites in the vicinity of the Site



The I-WeBS data for wintering seasons between 2009/2010 to 2019/2020 was provided by BirdWatch Ireland. The 5-year average of species, for the period 2015/2016 to 2019/2020 was assessed. A total of forty-six (46No.) species of birds were recorded. According to the Bird of conservation Concern in Ireland (BoCCI) [24], of these species:

- Twelve (12No.) species were green-listed – great black-backed gull, green sandpiper, greenshank, grey heron, Iceland gull, little egret, little grebe, little stint, moorhen, ring-billed gull, whimbrel, and yellow-legged gull;
- Twenty-two (22No.) were amber-listed - black-headed gull, common gull, common sandpiper, cormorant, great crested grebe, great northern diver, herring gull, kingfisher, lesser black-backed gull, light-bellied Brent goose, mallard, Mediterranean gull, mute swan, pintail, red-breasted merganser, ringed plover, shag, shelduck, spotted redshank, teal, turnstone and wigeon; and,
- Twelve (12No.) were red-listed - bar-tailed godwit, black-tailed godwit, curlew, dunlin, golden plover, goldeneye, grey plover, lapwing, oystercatcher, redshank, shoveler and snipe.

The 5-year mean (2015/2016 to 2019/2020) of these species at each subsite was reviewed and compared to the threshold levels of national and international importance. It was found that eleven (11No.) of these species have a 5-year average of less than one (<1), which included – common sandpiper, spotted redshank, green sandpiper, goldeneye, golden plover, Iceland gull, ring-billed gull, kingfisher, light-bellied Brent goose, shag and yellow-legged gull. The remaining species all had a 5-year mean of greater than one (>1) ; however, none of the bird species recorded in these subsites had populations that past the threshold levels of national or international importance.

#### 5.1.1.2 Nearby Planning Permissions - Cork County ePlan

Cork County Council ePlan website was consulted for nearby planning permissions that undertook bird surveys in recent years [11]. Two (2No.) nearby developments for a mixed-use scheme (Planning Ref.: 217264 & 217265) received grant of permission in September 2022, however these are both subject to appeals to An Bord Pleanála. A review of the planning documents shows that this development undertook wintering and breeding bird surveys in 2021.

The winter bird surveys recorded only one (1No.) red-listed species – redwing, none of the designated species of interest for the Cork Harbour SPA were recorded onsite. The breeding bird surveys recorded three (3No.) red-listed species – grey wagtail, swift and yellowhammer, and three (3No.) amber-listed species – sand martin, starling and swallow. However, none of these species were recorded in significant numbers. The report concluded that '*the field surveys did not identify habitats that support important assemblages or significant populations of breeding or wintering birds.*' [25].

#### 5.1.1.3 Anecdotal Information from the Landowner on Habitats and Species

Mr. Paul Moore, the landowner and a committee member of BirdWatch Ireland, was consulted for information on former habitat use within the Site and on the avian species utilising the Site.

Prior to 2007, the fields were utilised as agricultural grassland and at this time Mr. Moore noted small numbers of curlew and black-tailed godwits foraging within the fields during the winter season. However, following the conversion of land from agricultural grassland to arable, the landowner has not seen these species utilising the Site.

Mr. Moore also noted a pair yellowhammer and a pair greenfinch have been seen nesting along the southern boundary of the Site.

## 5.2 Field Based Study Results

### 5.2.1 Habitat Assessment

The following section provides details of the field-based assessments that were undertaken for the Site on 4<sup>th</sup> of August 2021 and 13<sup>th</sup> of October 2021. A description of the habitats and features of ecological significance are outlined below and illustrated in Figure 5-1.

### Arable Crops (BC1)

There are two (2No.) arable fields located within the Site boundary. The eastern field had previously been cultivated for the production of barley (*Hordeum vulgare*); however, at the time of the most recent Site visit, this field was being cultivated and managed for the production of radishes (*Raphanus raphanistrum*), a catch crop. The western arable field was also previously cultivated for barley; however, there was no evidence that would suggest it was planted with a catch crop.

In between the hedgerows / treelines and the crop, the understory and narrow field margins contained species such as bramble (*Rubus fruticosus*), bull thistle (*Cirsium vulgare*), prickly sow thistle (*Sonchus asper*), bird-eye speedwell (*Veronica persica*), stinging nettle (*Urtica dioica*), silverweed (*Argentina anserina*), field pansy (*Viola biocolor*), hogweed (*Heracleum sphondylium*), ladysthumb (*Persicaria masculosa*), hart's tongue (*Asplenium scolopendrium*), dog rose (*Rosa canina*), meadow buttercup (*Ranunculus acris*), and burdock (*Arctium* spp.).

### Improved Agricultural Grassland (GA1)

There are two (2No.) fields of improved agricultural grassland in the north-western section of the Site. These fields are separated by a drainage ditch and connected via a section filled drainage ditch acting as a bridging point. Both fields have a mixture of common grass species present throughout the field which are actively grazed by cattle. Other species found during the Site walkover were creeping thistle (*Cirsium arvense*), hart's tongue (*Asplenium scolopendrium*), common rush (*Juncus effusus*), and creeping buttercup (*Ranunculus repens*).

### Hedgerows (WL2) / Treelines (WL1)

The hedgerows and treelines form the majority of the Site perimeter and also transect the Site forming natural / semi-natural boundaries between the arable field. The eastern arable field is surrounded by a mature hedgerow and treeline containing common species such as hawthorn (*rataegus monogyna*), Gorse (*Ulex europaeus*), elm (*Ulmus* spp.), common ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*), Sycamore (*Acer pseudoplatanus*), and Beech (*Fagus sylvatica*). The understory and narrow field margins around the arable crop contained species such as bramble, bull thistle, prickly sow thistle, bird-eye speedwell, stinging nettle, silverweed, field pansy, hogweed, ladysthumb, hart's tongue, dog rose, meadow buttercup, and burdock.

The common species found in the hedgerows and treelines of the western arable field consist of the same species as the eastern arable field; however, additional species such as alder (*Alnus glutinosa*) and grey willow (*Salix cinerea*) were identified in the treeline and black nightshade (*Solanum nigrum*), willowherb (*Epilobium* spp.), and hemlock (*Conium maculatum*) were found in the understorey of the hedgerows and treelines, and along the margins of the field.

A mature treeline encloses the lane which divides the Site in the central region. This treeline consists of species such as common ash, hawthorn, sycamore, gorse, and nettle. This treeline was recently cut back, and the tops of some immature trees have been cut.

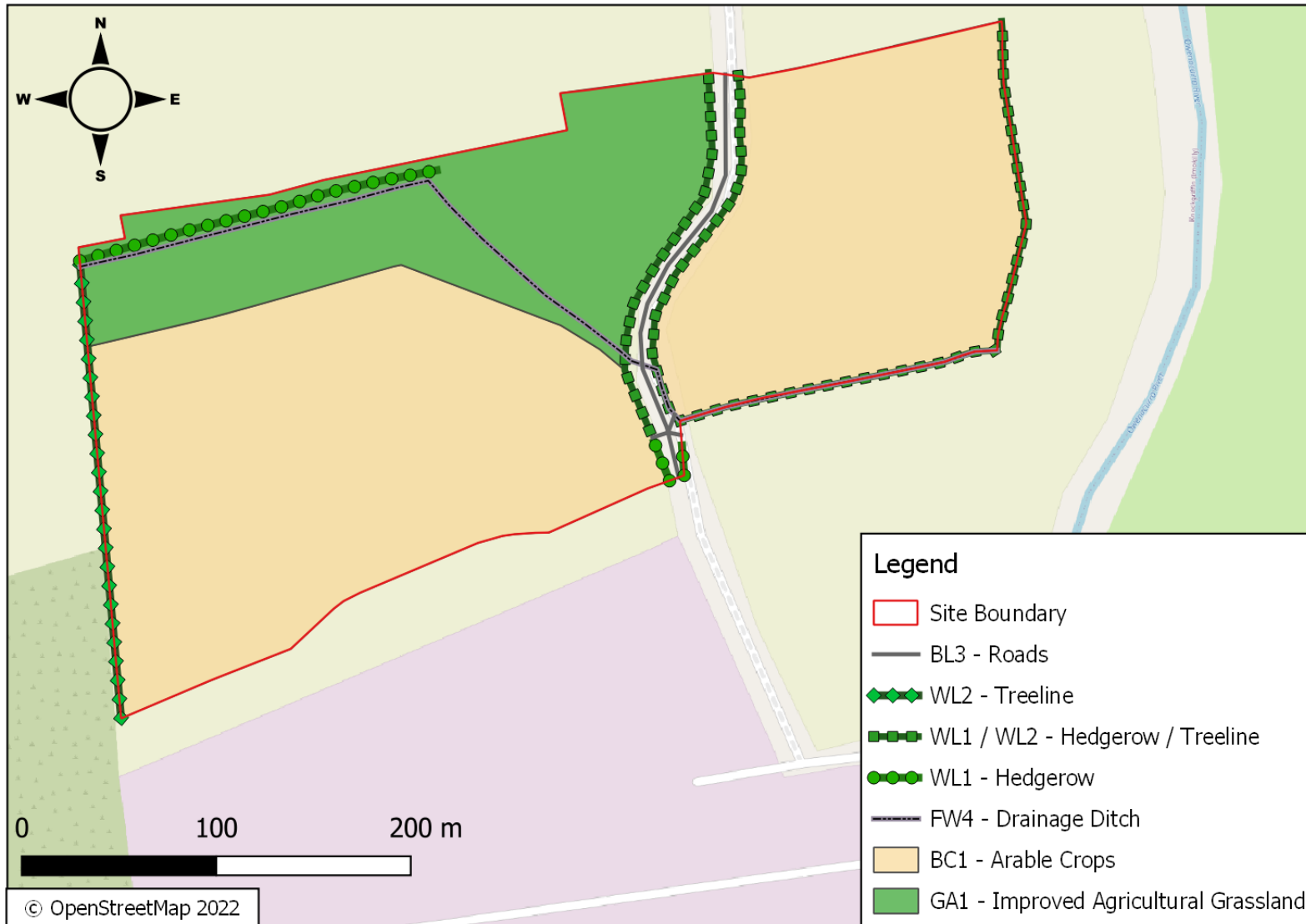
### Drainage Ditches (FW4)

A drainage ditch runs along the northern boundary of the Site and bisects the Site through the central region. The majority of this drainage ditch is fenced off except for a region where the two fields connect where there is evidence of cattle poaching. At the time of the first survey the drainage ditch was dry, however, during the second survey the drainage ditch was wet with a small amount of water but there was no flow of water and the water appeared stagnant. Furthermore, the drainage ditch was overgrown with common rushes (*Juncus effusus*) and European marshwort (*Helosciadium nodiflorum*).

### **5.3 Protected /Notable Species**

No protected or notable species considered relevant to the Natura Sites were identified during the field surveys.

Figure 5-2: Habitat Map



## 5.3.1 Species

### 5.3.1.1 Bird Habitat Assessment

During the breeding bird survey, a total of twelve (12No.) avian species were recorded onsite.

- Two (2No.) species were amber-listed - swallow and goldcrest;
- Ten (10No.) species were green-listed - blackbird, blue tit, buzzard, chaffinch, goldfinch, robin, rock pipit, rook, wren and woodpigeon; and,
- No red-listed species were identified onsite.

The species recorded are considered to be common within the Irish countryside and none of these species were present in significant numbers. No bird species were confirmed as breeding on the Site, however, species such as blackbirds, robins and wrens displayed territorial traits which may indicate that these species are possibly breeding in the locality. All other species were not considered to be breeding onsite at the time of the survey.

### **Bird Habitat Assessment**

#### Breeding Bird Habitat Assessment

The majority of the Site is comprised of agricultural and arable fields. There are no areas of tall grassland / scrub that would be considered suitable for ground nesting bird species. Furthermore, the agricultural grassland field is currently utilised for grazing cattle, which would further reduce the suitability of the habitat for ground nesting bird species. However, the agricultural field and arable fields are considered to be suitable for foraging breeding bird species. The onsite drainage ditch was overgrown at the time of the survey and the water level was very shallow, therefore this drainage ditch is not considered suitable for breeding wetland and waterbird species. The hedgerows / treelines are considered suitable for a range of common nesting bird species. However, no nests were observed within these hedgerows / treelines during the bird habitat assessment.

Overall, the Site is considered to provide limited breeding bird habitat through treelines / hedgerows, however, the Site does provide suitable foraging habitat for common bird species. However, given the presence of similar habitat within the wider area, the Site is not considered to be a site of importance for any breeding bird species.

#### Winter Bird Habitat Assessment

As previously mentioned, the Site is currently comprised primarily of arable fields and agricultural grassland. The arable fields were planted with radish in the winter and with barley in the summer. These fields are considered to provide limited foraging potential to most wetland and waterbirds during the winter given the fact that the fields remain cultivated with catch crops during the winter season. However, the agricultural grassland does have the potential to provide suitable foraging habitat to wintering bird species.

Anecdotal evidence provided by Mr. Moore has shown that while bird species utilised the Site in the past, no species have been identified onsite since the conversion from agricultural grassland to arable crop production. Furthermore, the adjacent planning permissions (Planning Ref: 217264 & 217265) did not identify any wetland or waterbirds within their sites. The only species of note that was recorded during their surveys was redwing. The Site does provide suitable foraging habitat for redwing, however, based on a review of aerial imagery and a windshield survey of the surrounding area it can be concluded that there is suitable habitat for foraging redwing within the vicinity of the Site and the wider area.

Based on a review of the BirdWatch Ireland I-WeBS data, there are a number of species that utilise the Cork Harbour SPA; however, none of the species have a 5-year mean (2015/2016-2019/2020) that would indicate that the populations are nationally or internationally important. None of these species were recorded onsite during the October 2021 survey and none of these species were recorded in the winter bird surveys undertaken at the adjacent planning



permissions (Planning Ref: 217264 & 217265). It should also be noted that the Site is separated from the Cork Harbour SPA by infrastructure and built land that is part of Midleton town.

Overall, the Site is considered to provide limited foraging potential to winter bird species and given the presence of similar habitat within the wider area the Site is not considered to be a site of importance for any wintering bird species.

#### **5.3.1.2 Invasive Species**

No protected or notable species (e.g., high impact species) considered relevant to the Natura sites were identified during the field surveys.

## **6 STAGE 1 SCREENING: IDENTIFICATION OF POTENTIAL SIGNIFICANT IMPACTS**

### **6.1 Potential Significant Impacts**

Potential significant effects, if any, on the Great Island SAC and Cork Harbour SPA were considered further in this section. The key output of this stage of the assessment was the identification of the types of threats to the integrity of the Natura 2000 sites as a result of implementing the Proposed Development.

A number of factors were examined at this stage and dismissed due to the very low risk associated with them. Table 6-1 and Table 6-2 present further details and rationale of the screening assessment undertaken for each of the qualifying interests of each of the Natura 2000 sites identified as having the potential to be significantly affected.

**Table 6-1: Screening Assessment: Annex I Habitats – Great Island SAC**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
<p><b>Mudflats and sandflats not covered by sea water at low tide</b></p>	<p>According to the Conservation Objectives Report, this habitat is limited to the intertidal reaches of the Great Island Channel SAC [26]. It is located ca.1.7km southeast of the Site at its closest point and ca.2.4km downstream of the Site [26]</p> <p>This habitat was not identified onsite or within the immediate vicinity of the Site.</p>	<p>Adverse effects associated with pollution during construction / operation of the Proposed Development</p>	<p>It is considered highly unlikely that the proposed works will have any significant direct or indirect negative effects on this habitat during either the construction or operational phase of the Proposed Development.</p> <p>This conclusion is based on the fact that over the ca.2.4km distance downstream from the Site to the SAC, any potential pollutants will be dispersed and diluted within the regular flow and large expanse of the Owennacurra River before reaching the designated sand and mudflat habitats. Therefore, there is very limited potential for this habitat to be affected.</p> <p>However, as mud and sandflats have the potential to be affected by sediment mixing and water borne pollutants, in the case of a major pollution event onsite, there is a slim potential that the subsequent water quality deterioration could affect the health of this designated habitat.</p> <p>Therefore, taking a precautionary approach, aside from the standard pollution prevention guidance, site-specific water quality mitigation measures will be incorporated into the Proposed Development.</p> <p>As such, this receptor has been screened in for further consideration.</p>	<p><b>Screened In</b></p>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
<b>Atlantic salt meadows</b> ( <i>Glauco-Puccinellietalia maritimae</i> )	<p>According to the Conservation Objectives Report, this habitat is limited to small stretches of shoreline within the Great Island Channel SAC [26]. Potential Atlantic salt meadows have been identified ca.1.7km southwest of the Site boundary or ca.2.4km downstream [26].</p> <p>This habitat was not identified onsite or within the immediate vicinity of the Site.</p>	As above	As per mudflats and sandflats	<b>Screened In</b>

**Table 6-2: Screening Assessment: Annex I Bird Species for Cork Harbour SPA**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
<b>Little Grebe</b>	<p>The NBDC holds records for Little Grebe within 2km of the Site [27].</p> <p>Little Grebe have a preference for nesting mostly on floating plant material hidden in dense vegetation at the margins of shallow, freshwater rivers, streams, loughs and ponds. In the winter, this bird species is typically found in coastal habitats [28]</p> <p>The habitats within the Site were not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	<p>Impairment to water quality; and,</p> <p>Indirect impacts on food supply chain.</p>	<p>The Site itself is not considered to be optimal or a site of importance for this species based on the onsite habitats and the habitats within the wider area. In addition, the onsite drainage ditch network was not considered to be suitable for this species given the fact there was only a small amount of stagnant water within the ditch at the time of the survey and the ditch was overgrown with vegetation. Furthermore, did not identify any water features bordering the Site that would be considered suitable for this species.</p> <p>Additionally, the presence of the Northern Midleton Relief Road, the N25 and the Nordic Enterprise Park within close proximity to the south of the Site, also act as significant buffer between the SPA and Site.</p> <p>Therefore, it is anticipated that this species will not be directly affected during the construction and operational phase of the Proposed Development.</p> <p>However, given the potential hydrological connection between the drainage network onsite and the Cork Harbour SPA via the Owennacurra River and the probability that</p>	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
			<p>designated bird species may utilise areas upstream of the SPA boundary, and therefore be within closer proximity to the Site, which could result in the potential for indirect effects to occur to this species. Water quality impairment as a result of uncontrolled construction works / a poorly designed operational phase, could lead to loss of foraging grounds and food supplies for this species.</p> <p>Therefore, this receptor has been scoped in for further consideration.</p>	
<p><b>Great Crested Grebe</b></p>	<p>The NBDC holds records for Great Crested Grebe within 2km of the Site [27].</p> <p>Great Crested Grebe have a preference for breeding on large, shallow eutrophic loughs, but will also nest in aquatic vegetation within open waters [29]. In winter, this bird species is typically found in coastal habitats [29].</p> <p>The habitats within the Site were not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite..</p>	<p>As above</p>	<p>See above as per little grebe.</p>	<p><b>Screened In</b></p>
<p><b>Cormorant</b></p>	<p>The NBDC holds records of Cormorant within 2km of the Site [27].</p> <p>This species is known to breed in colonies around the Irish coastline. However, some birds have been noted nesting inland in tree-colonies [30]. In addition, cormorants are known to winter at sea, although this species has been observed wintering inland in Ireland [30].</p> <p>The habitats / trees onsite were not considered suitable for this species. Additionally, the site walkover and bird</p>	<p>As above</p>	<p>See above as per little grebe.</p>	<p><b>Screened In</b></p>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	habitat assessment did not identify this species onsite.			
<b>Grey Heron</b>	<p>The NBDC does not hold recent records for Grey Heron within 2km of the Site [31].</p> <p>Grey heron are known to nest in large trees, sometimes with multiple birds in the same tree [31]. Also, grey herons are typically found wintering in the same areas they utilised for breeding purposes [31].</p> <p>Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Shelduck</b>	<p>The NBDC holds recent records for Shelduck within 2km of the Site [27].</p> <p>This species typically breeds in open areas associated with the Irish shoreline, large lakes and rivers [32]. Similarly, Shelduck are known to winter in estuaries and along tidal mudflats [32].</p> <p>Given the lack of suitable surface water features onsite or within the immediate habitats surrounding the Site, the Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite..</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Wigeon</b>	<p>The NBDC holds recent records for Wigeon within 2km of the Site [27].</p> <p>Wigeon is a wintering species that migrates from the Icelandic region to utilise the coastal marshes, lagoons, estuaries, bays,</p>	As above	See above as per little grebe.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>inland wetlands, lakes, rivers and turloughs [33].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>			
<b>Teal</b>	<p>According to the NBDC, there are records of Teal within 2km of the Site [27].</p> <p>Small numbers of this species breed in Ireland, within thick cover in small freshwater lakes and upland streams [34]. The majority of teal migrate to Ireland in the winter to wetland areas with large reedbeds, which can include coastal lagoons, estuaries, marshes, or inland lakes, ponds and turloughs [34].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Pintail</b>	<p>The NBDC does not hold recent records for Pintail within 2km of the Site [27].</p> <p>This species migrates to Ireland to winter in brackish lagoons, estuaries and large inland lakes. This species is known to form large flocks of birds [35].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
<b>Shoveler</b>	<p>The NBDC does not hold recent records for Shoveler within 2km of the Site [27].</p> <p>This species is known to breed in Ireland around the Lough Neagh and the Shannon basin [36], neither of which are located within close proximity to the Site. Shoveler are known to winter in eutrophic waters that are rich in plankton, however, they can also occur on inland lakes and callows [36].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Red-breasted Merganser</b>	<p>The NBDC holds records of Red-breasted Merganser within 2km of the Site [27].</p> <p>This species is known to nest in sheltered lakes and rivers typically in the west and north of Ireland and winters exclusively in brackish and marine waters [37].</p> <p>Therefore, the Site is considered unsuitable for breeding red-breasted merganser given the location of the Site and the absence of suitable watercourses within the Site boundary or its immediate surroundings. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Dunlin</b>	<p>The NBDC holds records of Dunlin within 2km of the Site [27].</p> <p>Dunlin breed in sparse low vegetation and have shown a preference for machair habitats and typically winter along coastal</p>	As above	See above as per little grebe.	<b>Screened In</b>



Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>areas, specifically mudflats and estuaries [38].</p> <p>The Site is considered unsuitable for this specie. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>			
<b>Black-tailed Godwit</b>	<p>The NBDC holds records of Black-tailed Godwit within 2km of the Site [27].</p> <p>This species breeds in lowland wet grassland and marshes, but predominantly in Iceland. In the winter, this species prefers estuarine coasts but can also be found in grasslands and river deltas [39].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Bar-tailed Godwit</b>	<p>The NBDC holds recent records for Bar-tailed Godwits within 2km of the Site [27].</p> <p>This species breeds in northern Europe, Norway and Finland, and winters entirely along Irish coastlines predominantly in sandy estuaries [40].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Redshank</b>	<p>The NBDC holds records of Redshank within 2km of the Site [27].</p> <p>Redshank are a ground nesting bird that prefer to nest in grassy tussocks in wet</p>	As above	See above as per little grebe.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>marshy areas. However, this species has been noted occasionally nesting in heather. Redshank prefer to winter in mudflats, estuaries and inlets; however, small numbers have been noted in lakes and rivers [41].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>			
<b>Black-headed Gull</b>	<p>The NBDC holds records of Black-headed Gull within 2km of the Site [27].</p> <p>This species typically nests in large colonies on the coasts and inland in wetland areas such as bogs, marshes, and manmade lakes [42]. However, it should be noted that inland breeding populations have declined dramatically due to predation [42]. The largest inland colonies are located in Galway, Monaghan and Mayo. This species is known to winter in both coastal and inland areas [42].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Common Gull</b>	<p>The NBDC holds records of Common Gull within 2km of the Site [27].</p> <p>The Common gull breeds in colonies predominantly along the coastline. Inland breeding can occur on islands in lakes although these populations have declined due to predation [43]. Common gulls utilise a range of wintering habitats including</p>	As above	See above as per little grebe.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>coastal areas, heather moorlands, meadowlands and urban areas [44].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>			
<b>Lesser Black-backed Gull</b>	<p>The NBDC holds records of Lesser Black-backed Gulls within 2km of the Site [27].</p> <p>This ground nesting species typically breeds in colonies often with other gulls species. Most colonies are on the coastline; however, inland colonies have been recorded in Co. Mayo and Co. Donegal [45].</p> <p>The habitats utilised by lesser black-backed gulls include offshore islands, islands in lakes, sand dunes and coastal cliffs [45]. This species winters both inland and on coastal habitats [45].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per little grebe.	<b>Screened In</b>
<b>Common Tern</b>	<p>The NBDC does not hold recent records for Terns within 2km of the Site [27].</p> <p>This ground nesting species breeds in colonies along the Irish coastline and colonies have been recorded in Co. Dublin, Co. Wexford and Co. Galway [46]. It should be noted that some birds have been noted breeding on islets in freshwater lakes in Co. Galway and Co. Mayo. This species also winters in west and south Africa [46].</p>	As above	See above as per little grebe.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>			
<p><b>Oystercatcher</b></p>	<p>The NBDC holds records of Oystercatcher within 2km of the Site [27].</p> <p>This species breeds predominantly on the Irish coastline within beaches, dunes, salt marshes and rocky shores. However, it has been noted nesting on large inland lakes. Oystercatchers are also known to winter in coastal habitats, preferably on sandy coasts [47].</p> <p>The Site is therefore, not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	<p>As above</p>	<p>The Site itself is not considered to be optimal or a site of importance for this species based on the onsite habitats and the habitats within the wider area. In addition, the onsite drainage ditch network was not considered to be suitable for this species given the fact there was only a small amount of stagnant water within the ditch at the time of the survey and the ditch was overgrown with vegetation. Furthermore, did not identify any water features bordering the Site that would be considered suitable for this species.</p> <p>While this species is known to use agricultural land to forage, it is not considered that the Site is likely to be of significant value based on the presence of similar habitat directly adjoining the estuary itself. Furthermore, the fact that the Site is separated from the estuary by the presence of the Northern Midleton Relief Road, the N25 and the Nordic Enterprise Park act as significant buffer between the SPA and Site.</p> <p>Overall, it is anticipated that this species will not be directly affected during the construction and operational phase of the Proposed Development.</p> <p>However, given the potential hydrological connection between the drainage network onsite and the Cork Harbour SPA via the Owennacurra River and the probability that designated bird species may utilise areas upstream of the SPA boundary, and therefore be within closer proximity to the Site, which could result in the potential for indirect effects to occur to this species. Water quality impairment as a result of uncontrolled construction works / a poorly designed operational phase, could lead to loss of foraging grounds and food supplies for this species.</p>	<p><b>Screened In</b></p>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
			Therefore, this receptor has been scoped in for further consideration.	
<b>Curlew</b>	<p>The NBDC holds records of Curlew within 2km of the Site [27].</p> <p>This species is not a common breeding bird, given the decline in the breeding population. However, the habitats utilised for breeding by this ground nesting bird include rough pastures, meadows and heather [48]. The wintering population of curlew is supplemented by Scottish and Scandinavian birds that typically winter in wetland habitats, both coastal and inland [48].</p> <p>The Site is not considered suitable for this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per oystercatcher.	<b>Screened In</b>
<b>Golden Plover</b>	<p>The NBDC holds records of Golden Plover within 2km of the Site [27].</p> <p>Golden Plover are known to breed in heather moors, blanket bogs and acidic grasslands predominantly in the west / northwest of Ireland [49]. This species typically winters in harvest fields, stubbles, mown grass, close-grazed pastures, fallows and other open farmland including flood lands [50].</p> <p>Based on the onsite habitats the Site is not considered suitable for breeding golden plover. However, it is possible that this species may utilise the Site for foraging in the winter; although it should be noted that</p>	As above	See above as per oystercatcher.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	no golden plovers were recorded during the Site walkover or bird habitat assessment.			
<b>Grey Plover</b>	<p>The NBDC does not hold recent records for Grey Plover within 2km of the Site [27].</p> <p>This species breeds in the high arctic regions of Russia and North America, and winters within coastal areas in Ireland [51].</p> <p>Therefore, the Site is considered unsuitable for breeding and wintering grey plover. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per oystercatcher.	<b>Screened In</b>
<b>Lapwing</b>	<p>The NBDC holds records of Lapwing within 2km of the Site [27].</p> <p>This species is known to breed in open farmland and winter in large flocks in predominantly wetland, pasture and rough land [52].</p> <p>The onsite habitats may provide some suitable habitat for lapwing, however, given the abundance of these habitats within the surrounding area and the presence of suitable wetland habitats along the Owennacurra Estuary, it is considered that the Site is not of importance to this species. Additionally, the site walkover and bird habitat assessment did not identify this species onsite.</p>	As above	See above as per oystercatcher.	<b>Screened In</b>
<b>Wetland and Waterbirds</b>	It should be noted that the NBDC holds records for the following wetland and waterbirds: Arctic Tern, Kingfisher,	As above	See above as per little grebe and oystercatcher.	<b>Screened In</b>

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rational	Screening conclusion
	<p>Greenshank, Mew Gull Snipe, Little Egret, and Mute Swan, within 2km of the Site [27].</p> <p>The Site is considered to provide limited potential for wetland and waterbirds as the only surface water feature onsite is the drainage ditch traversing the Site which contains minimal marsh vegetation. No wetland or waterbirds were identified onsite during the habitat survey or bird habitat assessment.</p>			

## 6.2 Screening Conclusion

Using professional experience, guidance and judgement, the following factors have been taken into account on identifying potential significant impacts on the identified Natura 2000 site:

- Qualifying interests;
- Special conservation interests;
- Conservation objectives;
- The nature of the onsite habitats; and,
- The location of the Site.

The screening process has examined the potential for the Proposed Development to significant effects cause adverse effects on Natura 2000 sites and the qualifying features of interest as per the screening determination in Section 4.

Taking a precautionary approach, the screening exercise has identified the following designated habitats and species:

### Habitats

- Mudflats and sandflats not covered by sea water at low tide
- Atlantic salt meadows

### Species

- |                          |                            |
|--------------------------|----------------------------|
| • Little Grebe           | • Bar-tailed Godwit        |
| • Great Crested Grebe    | • Redshank                 |
| • Cormorant              | • Black-headed Gull        |
| • Grey Heron             | • Common Gull              |
| • Shelduck               | • Lesser Black-backed Gull |
| • Wigeon                 | • Common Tern              |
| • Teal                   | • Oystercatcher            |
| • Pintail                | • Curlew                   |
| • Shoveler               | • Golden Plover            |
| • Red-breasted Merganser | • Grey Plover              |
| • Dunlin                 | • Lapwing                  |
| • Black-tailed Godwit    | • Wetland and Waterbirds   |

These habitats and species have been brought forward for further consideration due to the potential for adverse effects, as a result of the Proposed Development, in the absence of the appropriate mitigation measures. Therefore, progression to Stage 2 of the Appropriate Assessment process is required.

Section 7 further addresses potential issues arising from the Proposed Development and the mitigation measures required to negate any potential adverse effects on these habitats and species.



## 7 ASSESSMENT OF POTENTIAL SIGNIFICANT EFFECTS

This section provides recommendations for measures which will mitigate against any potential significant impacts of the proposed works on qualifying habitats and species throughout the duration of the project. The following effects with potential to adversely affect the conservation objectives of Great Island SAC and Cork Harbour SPA were identified and considered:

- Potential loss of, or disturbance to designated habitats and species; and,
- Potential impairment of water quality.

### 7.1 Loss of, or Disturbance to Designated Habitats during Construction

It is not considered likely that the Proposed Development will result in any direct loss to any of the Annex I habitats or Annex I or II species for which the Natura 2000 sites within 15km of the Site have been designated. This conclusion is based on the location of the Site on agricultural land adjacent to a built-up area and the intervening road network, including the busy North Midleton Relief Road, and urban fabric separating the Site from the Great Island Channel SAC and the Cork Harbour SPA.

As outlined in Tables 6-1 and 6-2, there were no designated habitats recorded onsite or within the immediate vicinity of the Site and the habitats present onsite were not considered suitable for the majority of bird species protected under Cork Harbour SPA.

It should be noted that although certain species within the Cork Harbour SPA have been observed wintering inland and may utilise harvest fields, stubbles or urban areas for this purpose, such as the golden plover and common gull, no notable species or evidence of any colonies were observed onsite. Furthermore, the arable fields and the improved agricultural grassland fields onsite are separated from the Owennacurra Estuary by Midleton town and the N25. There is an abundance of agricultural fields which are directly adjacent to the Owennacurra Estuary and it is considered more likely that any foraging birds would utilize these areas. It is therefore considered that the loss of these fields is not considered to be significant.

In addition, the section of hedgerow / treeline to be removed onsite will be cleared outside of the nesting and breeding season for birds and wildlife (from March 1<sup>st</sup> to 31<sup>st</sup> of August) as per best practice guidance. This in turn will protect any designated bird species in the highly unlikely event they decide to utilise these areas for breeding purposes. However, as described in Table 6-2, the hedgerows / treelines onsite were not considered suitable for any of the designated bird species protected under Cork Harbour SPA.

In addition, it is not anticipated that designated bird species will be adversely affected through disturbance during construction given the fact that birds are highly mobile and will therefore move away from disturbances.

However, given the presence of a potential hydrological connection to designated habitats and sites of importance for designated bird species, mitigation measures will be put in place in order to prevent any adverse effects to the water quality within the Great Island Channel SAC and Cork Harbour SPA, refer to Section 7.2 below.

### 7.2 Potential Impairment of Water Quality

#### 7.2.1 Construction Phase

Should potential pollutants from the Site enter the Owennacurra River via the onsite drainage ditches, and flow downstream to the Great Island Channel SAC and Cork Harbour SPA, this could adversely affect the water quality within the immediate river network and subsequently, the Natura 2000 sites downstream. Potential pollutants resulting from the construction works include suspended solids, cementitious materials, silt and hydrocarbon leaks or spills.

Sediment and silt have the potential to clog fish gills, degrade spawning habitats and cover / smother aquatic vegetation and therefore, these pollutants could result in decreased food availability for designated bird species within Cork Harbour SPA. In addition, hydrocarbons have the potential to change the chemical balance of a waterbody which can prove toxic to fish and other wildlife such as wetland and waterbirds. Designated habitats are also vulnerable to sediment mixing and contamination through these pollutants.

In order to ensure that the works do not have an impact on either of the Natura 2000 sites downstream of the Site, the following surface water mitigation measures will be implemented during the construction phase of the Proposed Development:

- Where the drainage ditch is crossed, the release of sediment over baseline conditions will be prevented by the use of silt traps, check dams and / or bunds. These will be put in place in advance of construction works and monitored on a regular basis;
- The temporary construction compound will not be constructed within 10m of the onsite drainage ditch and all materials shall be stored at the construction compound and transported to the works zone immediately prior to construction
- Weather conditions will be considered when planning construction activities to minimise risk of run off the Site and any pouring of concrete will be carried in dry weather. Washout of concrete trucks will not be permitted on the Site;
- All storm water discharge during the construction works will be directed through hydrocarbon interceptors and grit sumps prior to reaching the storm water attenuation tank;
- All construction works associated with the storm drainage infrastructure onsite will be completed, cleaned and inspected in advance of connecting into the existing stream network;
- The proposed surface drainage system will be inspected following construction to ensure no cross connection exists between the proposed foul and surface water networks;
- Prior to any works commencing, all equipment required for construction will be checked to ensure that they are mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease;
- 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 current best practice;
- Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled;
- Refuelling will be carried out offsite or within a designated hardstanding area and will not be left unattended. All pumps, hoses etc will be checked regularly;
- Adequate spill kits including absorbent booms and other absorbent material will be maintained onsite;
- All contractor workers will be appropriately trained in the use of spill kits;
- 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 recycling;
- Any spillage of cementitious materials will be cleaned up immediately;

- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the Site and properly disposed of; and,
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or recycling.

### 7.2.2 Dust Impacts on Water Quality

The proposed works have the potential to temporarily elevate dust levels which could have an impact on local water quality should the dust be displaced to the Owennacurra estuary or enter the runoff discharging to this waterbody. Therefore, to ensure dust emissions will have no significant impacts on water quality during the construction phase, the following mitigation measures will be adhered to:

- Any temporary Site roads will be surface dressed with crushed rock;
- In the event that the public road becomes soiled, the contractor will have available a sweeper to remove soil and debris promptly;
- Work areas and stockpiles will be sprayed during periods of dry weather in order to suppress dust mitigation from the Site;
- Wheel washing facilities will be installed close to the Site entrance to prevent mud from construction operations being transported on to adjacent public roads during major earthworks;
- Dusty materials will be transported appropriately e.g. sheeting of vehicles carrying spoil and other dusty materials;
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind; and,
- Loading and unloading will only be permitted in designated hard standing areas.

It can therefore be concluded that the Proposed Development at the Site will not have any adverse effects on the surface water quality and cause no adverse effects to qualifying habitats or species of the Great Island Channel SAC or Cork Harbour SPA.

### 7.3 Analysis of 'In-Combination' Effects

The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

The Habitats Directive requires that an appropriate assessment of any plan or project takes into consideration effect alone or in-combination with other plans and projects.

The Proposed Development will be completed in three separated phases and is comprised of ca.330 units, as outlined in Section 1.1. As outlined above, the Proposed Development is unlikely to have any direct or indirect significant effects on the identified Natura 2000 sites with the implementation of specific mitigation measures.

Dawn Meats (Planning reference: 217265) and EMR Projects Ltd. (Planning reference: 217264) have submitted separate planning applications for residential developments to the east and the south of the Site during December 2021 Both of these developments were granted permission by Cork County Council in September 2022. These residential developments are located less than 100m from the Proposed Development. It should be noted that these applications were accompanied by a joint Appropriate Assessment Screening (AA) and a composite Environmental Impact Assessment Report (EIAR). These developments were assessed for their potential for adverse effects to Natura 2000 sites and the accompanying reports concluded that the proposed residential developments will not have a

significant effect on any habitats or species designated as conservation interests for any Natura 2000 sites.

It is not considered that the agricultural fields within the Site are of value to Annex I or Annex II species. The reports prepared for the above development also reached the same conclusion. It is not considered that the loss of the onsite habitats in combination with the loss of the habitats associated with the above development will have any adverse in-combination impacts on any Natura 2000 Site.

Taking the above into account and considering the nature of the Proposed Development within a zoned residential environment adherence to best practice guidance and the implementation of the mitigation measures outlined within this NIS during both the construction and operational phase of the Proposed Development, it can be concluded there will not be any significant in-combination contribution by the project to possible adverse effects on the Great Island Channel SAC or the Cork Harbour SPA

## 8 SCREENING CONCLUSIONS AND STATEMENT

A detailed assessment of the layout and nature of the Proposed Development, the construction methods to be employed and the overall activities that will occur at the Site during construction and operation has been carried out and the potential for adverse effects on Natura 2000 sites and qualifying features of interest within a 15km radius of the Site has been examined in detail.

Of the Natura 2000 sites identified within a 15km radius, the Great Island Channel SAC and the Cork Harbour SPA were taken forward for further detailed consideration due to their proximity and hydrological connection to the Site through the surface water and foul drainage.

It is considered reasonable to conclude that the Proposed Development will not result in any adverse effects on the basis that the specific mitigation measures will be implemented. Specifically, the proposed works will be undertaken to avoid adverse effects to water quality and consequently the designated habitats and bird species protected under the SAC and SPA.

In terms of significance with regard to adverse effects on Natura 2000 sites, the NPWS Guidance (2009) uses an EC definition as follows:

*“Any element of a plan or project that has the potential to affect the conservation objectives of a Natura 2000 Site, including its structure and function, should be considered significant (EC, 2006)”.*

It can be concluded that the Proposed Development and all associated site works, alone or in-combination with other projects, will not adversely affect the integrity, and conservation status of any of the qualifying interests of the Great Island Channel SAC and the Cork Harbour SPA.

Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e. Assessment of Alternatives Solutions) is not considered necessary.

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# APPENDICES

# APPENDIX A

# Comhairle Contae Chorcaí Cork County Council

Haven Falls Ltd  
c/o Tom Halley  
McCutcheon Halley  
6 Joyce House  
Barrack Square  
Ballincollig  
Cork  
P31 YX97

Pleanáil agus Forbairt,  
Halla an Chontae,  
Bóthar Charraig Ruacháin,  
Corcaigh T12 R2NC.  
Fón: (021) 4276891 • Faics: (021) 4276321  
R-phost: [planninginfo@corkcoco.ie](mailto:planninginfo@corkcoco.ie)  
Suíomh Gréasáin: [www.corkcoco.ie](http://www.corkcoco.ie)  
Planning & Development,  
County Hall,  
Carrigrohane Road, Cork T12 R2NC.  
Tel (021) 4276891 • Fax (021) 4276321  
Email: [planninginfo@corkcoco.ie](mailto:planninginfo@corkcoco.ie)  
Web: [www.corkcoco.ie](http://www.corkcoco.ie)



8<sup>th</sup> August 2022

Further to the details received on the 17<sup>th</sup> June 2022 and the recent LRD Meeting of the 13<sup>th</sup> July 2022, the Planning Authority's Opinion under Section 32D of the Act on the proposed large scale residential development at Water Rock, Midleton is set out below.

In accordance with Section 32D of the Planning & Development (Large-scale Residential Development) Act 2021 it is considered that the following issues need to be addressed in the documents submitted in order to result in them constituting a reasonable basis for an application:

## Appropriate Assessment

With regard to the NIS it is noted that no survey work has taken place in respect of presence of Qualifying interest birds of the SPA on site or within the upper reaches of the Owenacurra. Further consideration of same should be carried out having regard to available information including surveys carried out in respect of other schemes in the area such as Midleton FRS and NPWS data. This information shall be used to inform the assessment.

The NIS should consider potential impacts associated with silts and pollutants to enter the on-site drain which is hydrologically connected to the Owenacurra. Details in relation to the location of the contractors compound and building materials should also be submitted and assessed as part of the NIS.

## Ecology

The loss of so many trees and hedgerows and an established drainage ditch is a concern to the Planning Authority and should be addressed.

Revised proposals are required in the applications details to integrate these features of the landscape into the scheme in so far as possible as they are important ecological corridors for wildlife and link into the Owenacurra corridor to the east.

Having regard to the extensive tree loss and habitat loss on site revised documents should include a detailed bat survey and bird breeding survey (as limited assessment of same has been carried out as part of EclIA). The Bat Survey shall follow guidelines for Professional Ecologists Good Practice Guidelines 3rd edition and detailed methodology and results shall be presented in this assessment. Survey results shall also be submitted including maps illustrating any potential roost sites, foraging areas and commuting corridors and associated numbers.

Where tree / hedgerow loss is unavoidable, this shall be identified on the landscaping plan and shall also be fully assessed as part of the Ecological Impact Assessment. Any tree/hedgerow loss will need to be adequately ameliorated in line with CDP Objective BE 15 – 6 supporting the principle of biodiversity net gain. The revised EclA should include a detailed assessment of biodiversity loss / gains and shall be quantified within the assessment.

Proposals shall integrate provisions of Green Infrastructure Objectives GI 14 – 1 and GI 14 – 3 of the County Development Plan whereby a Green Infrastructure Strategy shall be submitted. These objectives require that new development proposals contribute to the protection, management and enhancement of the existing green and blue infrastructure connections with the wider environment. The green infrastructure strategy should tie in with the Landscaping Plan, and Ecological Impact Assessment including biodiversity enhancement proposals to ensure that proposals supporting the principle of biodiversity net gain (CDP Objective BE 15 – 6).

### **Cork CDP 2022 Objectives that require further consideration**

Applicant requested to update EclA and NIS to have regard to new Cork County CDP 2022 having particular regard to the following Objectives.

- Objectives GI 14 – 1 and GI 14 – 3 includes a requirement for new developments to prepare a **Green Infrastructure strategy**.
- Objective BE 15 – 6 to ensure that proposals support the principle of **biodiversity net gain**.
- Objectives BE 15 – 8 seek **protection of mature tree groups and mature hedgerows**.
- Objective GI 14 – 9 discourages proposals necessitating **removal of extensive amounts of trees, hedgerows**.
- Objective BE 15 – 2 seeks to **protect and enhance areas of local biodiversity value, ecological corridors and features of the county’s ecological network including hedgerows and treelines**.

### **Archaeology**

In relation to archaeological impacts, the documents submitted do not constitute a reasonable basis on which to make an application. In order to address this, the applicant is required to engage the services of a suitably qualified archaeologist licensed under the National Monuments Acts 1930–2004) to carry out an Archaeological Impact Assessment. This archaeological assessment shall:

- examine the known and predicted archaeological environment
- examine the proposed development
- evaluate the proposed development in terms of the impact (direct and indirect) of the proposed works on existing or predicted archaeology
- carryout a geophysical survey followed by a program of archaeological testing
- propose a strategy to mitigate the adverse effects of the development on the archaeological heritage

No subsurface work should be undertaken in the absence of the archaeologist without his/her express consent.

The archaeologist should carry out any relevant documentary research and inspect the site for archaeology including post medieval archaeology. A geophysical survey across the proposed development site shall be carried out by a suitably qualified Geophysical archaeologist. The results of the Geophysical survey and field survey shall be submitted to County Archaeologist to review with a program for archaeological testing for written approval prior to submitting for the licence. The archaeological shall carried out the agreed program of archaeological testing (under licence). If significant archaeology is identified during the testing program the County Archaeologist shall be immediately contacted. The results of the testing shall be submitted to the County Archaeologist to agree a mitigation program. If significant archaeological is identified, mitigation measures will be required such as preservation in situ/redesign, testing, archaeological monitoring.

The Archaeological Assessment report shall contain the above information, with clearly labelled drawings (including a plan of monument /archaeological features identified (if any) overlaid with the proposed development with agreed buffer zone) and relevant photographs. Relevant experience of the consultant archaeologist should be cited within the Assessment.

In addition to the matters above, the following additional details should accompany the planning application:

#### **Design/Layout Considerations**

Submit fully detailed drawings of all proposed structures in accordance with the Planning & Development Regulations. Detailed drawings of housing which demonstrate adequate amenity standards are required. Representative site sections will be required to fully illustrate the relationship between residences.

With regard to the layout presented, it is considered that consideration be given to the following suggested amendments:

- the location of apartment blocks 1 & 2 and the adjoining maisonette in the South Western corner of the site remain too close to the site boundary with not enough separation distances to the boundaries.
- Vehicular traffic to serve these apartments (blocks 1 & 2) and adjoining maisonette block has to travel through the featured courtyards where development of home-zone play areas should be developed.
- All ground floor apartments should ideally have their own independent front door (to facilitate aged community / step down) with landscaped buffer separation. It would seem difficult to achieve same to the best advantage in the current layout in this location.
- Developed designs should endeavour to draw inspiration from the rich building heritage present in nearby Middleton Town with regard to character setting and creating a sense of place and avoidance of an urban corporate image. Revised documentation is required to demonstrate same.
- Submit detailed boundary treatment proposals.
- Greater consider should be given to the provision of bicycle parking.

### ***Movement /connectivity***

Revised drawings are required to include cross sections showing connection points to the proposed URDF park to the East taking account of the level differential. Levels on site shall be modified to assist the tie in with same. The tie-in point should be at 12.270m to suit existing levels on the side of the proposed housing development to the west of Water-Rock Linear Park. This is following CCC final design of the linear park due for imminent submission to Part 8 planning.

The site access road running north-south within the development from the new proposed LIHAF infrastructure road should include a similar cross section as the LIHAF infrastructure.

The pedestrian/cycle route seems to terminate at creche on the East side. This issue should be rectified as it is crucial this element fully links to the greenway.

Along the greenway which runs east-west through the site, revised documentation needs to demonstrate the creation of a safe environment to encourage walking/cycling over car use within the proposed development. At the Greenway adjacent to Road 12 and Road 16 there are concerns regarding the number of driveways that interact with the greenway. There is a likely conflict with vehicles reversing from driveway and cyclists, especially children. Note the relationship of this route with the park and the proposed primary school adjoining to the west.

More detail is required on how vehicles will interact with greenway with road 3 and 4 demonstrating how cyclists will be protected. This east-west route is important for connection to adjacent developments, schools, recreation areas and for access to Inter Urban Route 1.

In relation to cycle parking, lockable secure facilities should be provided to serve the apartment buildings and have regard to County Development Plan requirements and emphasis on sheltered parking.

Bike parking should be provided at Rock Square and other amenity zones.

### ***Traffic and Transport***

Traffic counts were carried out on 11<sup>th</sup> of January 2022. There is a concern that this does not accurately represent traffic as Covid restrictions were still in place. This element may require a comprehensive survey over a number of days for more detail, necessitating revisions to the Traffic and Transport Assessment. (Please note Mott McDonald carried out a 7 day survey in March for Irish Rail for comparison purposes).

### ***Community/Education***

Further justification is necessary to ensure that the documentation submitted in respect of childcare provision responds appropriately to national guidance and that the drawings and details submitted reflect the proposal.

### ***Infrastructure***

Submit a statement to demonstrate compatibility with Part 8 infrastructure upgrades for the wider Water rock area.

## Public Lighting

The applicant must ensure that the design, materials, and installation comply with the Cork County Council Public Lighting Manual and Product Specification 2021, which is available on the CCC web site, [www.corkcoco.ie](http://www.corkcoco.ie). (Please note the section on design and in particular all the items in Appendix H and especially Figure 4.). The developer must design, install, and use materials that comply with this document.

The following Items as contained in Appendix H, Figure 4, of the Cork County Council Public Lighting Manual and Product Specification 2021 shall apply to this development: - M1, M2, M3, M4, M5, M6, M9, M14, M19, M22, M23, M25, M27 and M28.

The applicant is to ensure that the columns being installed are in accordance with the CCC Public Lighting manual 2021. Plain tubular stepped columns are not acceptable.

All lighting points shall be accessible by means of a hydraulic hoist, for maintenance purposes. Such a hoist requires a minimum paved vehicular access of 3.5 metres. In exceptional circumstances, if such access is not available special arrangements shall be made such as the use of hinged columns. These should be clearly identified on the public lighting drawings.

There are some clashes between the location of lights and trees throughout this development. The Applicant needs to carry out a cross check between the location of the lights and trees so as to ensure that no light is **within 10m of a tree** so that the lights can operate effectively. This needs to be reflected in a re-design of both the lights and the landscaping. As part of the design process, the location of the columns will have to be cross referenced with the location of landscaping items, especially trees, so that the effective operation of the public lighting will not be interfered with when the trees mature in 20 / 30 years time.

The Horizontal Illuminance (lux) for "Internal Estate LHS" within Lighting Report "Design A" is not achieving P3 Class lighting standards. The lighting associated with this development is not achieving these standards and needs to be revised. The applicant is responsible for the design and in ensuring that the lux levels are achieved on site.

The Horizontal Illuminance (lux) for "Isolated Paths LHS" within Lighting Report "Design A" is not achieving P4 Class lighting standards. The lighting associated with this development is not achieving these standards and needs to be revised. The applicant is responsible for the design and in ensuring that the lux levels are achieved on site.

The Horizontal Illuminance (lux) for "Isolated Paths RHS" within Lighting Report "Design B" does not have the correct Grid image. Applicant to revise.

The Horizontal Illuminance (lux) for "Spine Road" within Lighting Report "Design C" is not achieving P2 Class lighting standards. The lighting associated with this development is not achieving these standards and needs to be revised. The applicant is responsible for the design and in ensuring that the lux levels are achieved on site.

The applicant shall aim to site public lighting columns generally at the back of the footpath in public ground, and where appropriate, columns shall be located on the boundaries between properties and not in locations where could affect the potential to extend driveways in the future.

The Applicant shall provide a separate power source for public lighting related to the Crèche/Apartments/Commercial premises. This power source shall be from the private development and not from the housing estate public lighting system



The applicant must demonstrate and ensure that there is no light pollution (obtrusive light – as per ILP Guidance note GN10:2011) outside their property that would affect third party properties and members of the public, including drivers travelling on the public road.

The Applicant shall show within the Public Lighting Report, “Conflict Zone” at the entrance to the proposed development. Applicant shall design for conflict zone and install a public light opposite the T-junction entrance to this development and shall forward a design report along with lux levels plot for the entrance.

***Other Issues***

Consistency is required across all documents and drawings/particulars submitted.

Include a map of areas to be taken in charge.

In relation to obligations under Part V of the Planning & Development Act 2000 (as amended) in respect of social/affordable housing, submit evidence to support the requirement for 10% relating to the date of purchase of the land. In addition, a schedule of unit types being allocated and indicative costs being provided for each unit type will be required.

A Flood Risk Assessment has been referenced in the submitted documents however same was not received. Please include this detail.

Update the Construction and Environmental Management Plan to ensure it accounts for the length of permission required. In this regard, the documents shall clarify the duration of the proposed permission, with a phasing proposal.

EV charging points should be placed in various locations throughout.

A SuDS approach to stormwater management is to be adopted. Recharge measures should be used where possible (not just attenuation).

Given the karst nature of the aquifer, any proposed attenuation would need to utilise robust structures.

**Please note that neither the taking place of an LRD meeting nor the provision of an LRD opinion shall prejudice the performance by the planning authority of its functions under the legislation and cannot be relied upon in the formal planning process or in legal proceedings.**

**Noel Sheridan  
S/Senior Planner  
9<sup>th</sup> August 2022**

# APPENDIX B

PROPOSED ADJOINING  
MASTERPLAN LOCATION OF  
SECONDARY SCHOOL

LOCATION OF ADJACENT PROPOSAL  
(PLANNING APPLICATION NO 217265,  
DAWN MEATS IRELAND)

PROPOSED ADJOINING  
MASTERPLAN  
DEVELOPMENT

PROPOSED ADJOINING  
MASTERPLAN  
DEVELOPMENT

**SITE SUMMARY DETAILS:**  
RED-LINE AREA : 9.49 ha  
NO. OF UNITS : 330  
NETT DENSITY : 35.7 appx.  
(UNITS/ha)

- LEGEND:**
- DWELLINGS**
- House Type A, 'ACHILL'
  - House Type B, 'ARAN'
  - House Type C, 'GARNISH'
  - House Type D, 'INISHEER'
  - House Type E, 'LAMBAY'
  - House Type F, 'VALENCIA'
- OTHER ACCOMMODATION**
- Type J, 'BOFFIN', Maisonette
  - APARTMENT BLOCK TYPE 'A'
  - APARTMENT BLOCK TYPE 'B'
- SITE FACILITIES**
- A Playground
  - A MUGA, Courts
  - B Bin Store
  - C Bicycle Parking
  - D Communal Recycling Facility
  - LS Street Light

- LEGEND: LANDSCAPE**
- Active Open Space
  - Passive Open Space
  - Private Rear Gardens
  - Proposed Tree
  - Proposed Hedgrows

DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS IN ALL CASES.  
VERIFY DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECTS IMMEDIATELY.  
THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTS SPECIFICATION.  
DRAWING IS COPYRIGHT AND MAY ONLY BE REPRODUCED WITH THE ARCHITECTS PERMISSION.

NOTES

DRG SERIES

NO.	DATE	BY	REVISED

Gittens Murray Architects Ltd

JOB  
WATERROCK HOUSING,  
MIDLETON, CO. CORK.

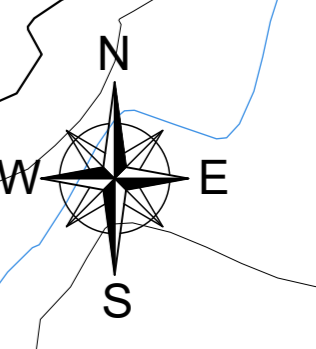
CLIENT  
HAVEN FALLS LTD.

TITLE  
PROPOSED  
SITE LAYOUT PLAN

DATE: 06.10.2022 SCALE: 1:500 @A0  
DRN: SH1 CHECKED: MG

**GMA**  
ARCHITECTS  
INTERIOR DESIGNERS  
5 William St.  
Kilberry.

JOB NUMBER: 20/033-LRD-S-001  
DRAWING NUMBER: 20/033-LRD-S-001  
REVISION: 01  
T.E.L: (05 6) 7753933  
FAX: (05 6) 7753909  
email: gdmarch1@eircom.net



# APPENDIX C

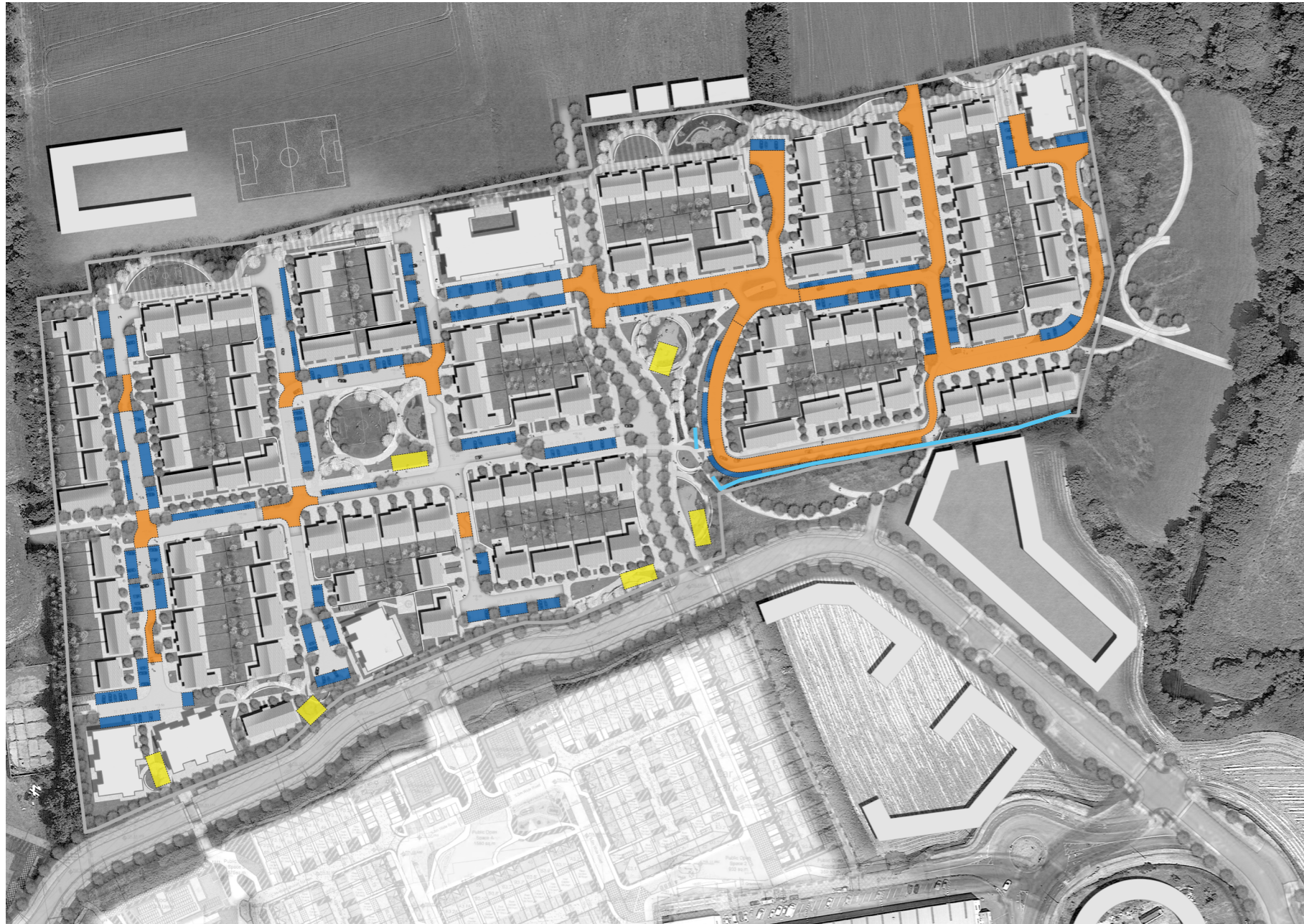


- DRAINAGE GENERAL**
- CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT ALL DRAINAGE INFRASTRUCTURE TO ENSURE NO CLASHES OCCUR WITH SERVICE DUCTS, CHAMBERS ETC.
  - CARE SHOULD BE TAKEN BY THE CONTRACTOR WHEN HANDLING PIPES, PARTICULARLY WHEN UNLOADING AND STACKING, SO AS TO AVOID DAMAGING THEM.
  - ALL PIPE SEALS AND GASKETS SHOULD BE STORED INDOORS AWAY FROM DIRECT SUNLIGHT.
  - POLYETHYLENE TANKWALL ROAD DRAINAGE PIPES CONSISTING OF A DOUBLE WALL WHICH HAVE A SMOOTH INTERIOR AND RIBBED EXTERIOR WITH A SMOOTH BORE INTEGRAL SOCKET COUPLERS CONSIST OF A SINGLE WALL, WITH SMOOTH INTERIOR AND EXTERIOR SURFACES. SOIL-TIGHT AND WATER-TIGHT JOINTS ARE MADE BY FITTING A RUBBER SEALING RING OVER THE PIPE SPOUT END AND THEN ASSEMBLING IT INTO THE INTEGRATED PIPE SOCKET OR COUPLER. INSTALLATION IN ACCORDANCE WITH MANUFACTURERS GUIDELINES.
  - EXCAVATION SHOULD NOT BE CARRIED OUT TOO FAR IN ADVANCE OF PIPE INSTALLATION ALL RELEVANT HEALTH & SAFETY REQUIREMENTS IN RESPECT OF EXCAVATION SHOULD BE OBSERVED BY THE CONTRACTOR DURING EXCAVATION WORKS.
  - BEFORE LAYING THE PIPES AND FITTINGS MUST BE CHECKED FOR DAMAGE THAT MAY HAVE OCCURRED IN TRANSIT OR STORAGE PRIOR TO INSTALLATION. DAMAGED PIPES OR FITTINGS MUST NOT BE INSTALLED. THE LAYING SHOULD BE COMMENCED AT THE LOWER END OR OUTFALL END OF THE PIPELINE RUN AND THE PIPES ARE PREFERABLY LAID SO THAT THE SOCKETS FACE TO THE TOP OF THE PIPELINE RUN WHEN TWO PIPELINES ARE LAID SIDE BY SIDE. APPROPRIATE SEPARATION SHOULD BE ALLOWED TO PERMIT THE APPROPRIATE COMPACTION OF THE MATERIAL BETWEEN THE TWO PIPE RUNS.
  - THE PIPES ARE INSTALLED USING TRADITIONAL DRAIN LAYING METHODS IN ACCORDANCE WITH MSA SPECIFICATIONS AND IN ACCORDANCE WITH THE MCDW, VOLUME 1, CLAUSES 503, 505, 517 AND 518.8.
  - MINIMUM COVER TO PIPES:
    - 1200mm ROADWAYS
    - 900mm OPEN SPACES, FOOTPATHS NOT ADJACENT TO ROADS
    - 600mm GARDENS
  - THE CONTRACTOR SHOULD PLAN HIS WORK FOR CHAMBERS AND MANHOLES SO AS TO MINIMIZE AS MUCH AS POSSIBLE WORKING REQUIRED IN CONFINED SPACES.
  - JOINT LUBRICANTS FOR SLIDING JOINTS SHALL HAVE NO DELETERIOUS EFFECT ON EITHER THE JOINT RINGS OR PIPES AND SHALL BE UNAFFECTED BY SEWAGE.
  - ALL ABANDONED SEWER PIPES TO BE FILLED WITH C12/15 CONCRETE. ABANDONED MANHOLES TO BE BROKEN OUT IF POSSIBLE. OTHERWISE THEY SHOULD BE FILLED WITH C12/15 CONCRETE.
  - THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RELEVANT SERVICE PROVIDERS IN ADVANCE OF ANY PLANNED EXCAVATION WORKS TO VERIFY THE LOCATION, DEPTH AND NATURE OF ANY UNDERGROUND SERVICES.
  - ROCKER PIPES:
    - ROCKER PIPES SHOULD BE PROVIDED AT ALL LOCATIONS WHERE:
      - A PIPE ENTERS OR LEAVES A MANHOLE, PUMPING STATION OR OTHER RIDGID STRUCTURE.
      - A PIPE ENTERS OR LEAVES A CONCRETE ENCASUREMENT.
    - ANY ROCKERS SHOULD BE DIRECTLY TO THE ENGINEER.
    - ROCKER PIPE JOINT TO BE LOCATED NO MORE THAN 150mm FROM THE OUTSIDE FACE OF THE STRUCTURE TO WHICH THE PIPEWORK IS SERVING. THE EFFECTIVE LENGTH OF THE ROCKERS SHOULD BE:
      - PIPE DIAMETER 150mm TO 600mm: 0.66m
      - PIPE DIAMETER 600mm TO 750mm: 1.00m
      - PIPE DIAMETER GREATER THAN 750mm: 1.25m
    - ALL ROCKER PIPES ARE TO BE FORMED BY CUTTING AND TRIMMING A LENGTH OF SPOUT & SOCKET PIPE TO FORM A SPOUT AT THE CUT END, THEREBY FORMING SPOUT & SOCKET JOINTS AT BOTH ENDS OF THE ROCKER PIPE.
  - PIPEWORK AND BENCHING TO A SINGLE MANHOLE CHAMBER SHOULD BE COMPLETED AND THE ENGINEER INVITED TO INSPECT SAME BEFORE ALL REMAINING CHAMBERS ARE COMPLETED.
  - ONLY PROPRIETARY CONNECTION PIECES TO BE USED FOR MAKING CONNECTIONS TO SEWERS.
  - WHEN INSTALLING FLEXIBLE PIPES (SINGLEWALL WALLED PVC OR SIMILAR) PARTICULAR CARE SHOULD BE TAKEN BY THE CONTRACTOR TO ENSURE THE PIPES ARE WELL BENCHED AND SURROUNDED IN 600 QUALITY GRANULAR MATERIAL IN ACCORDANCE WITH THE SPECIFICATION.
  - THE CONTRACTOR MUST TAKE GREAT CARE WHEN COMPACTING MATERIAL OVER DRAINAGE PIPES SO AS NOT TO DISLODGE THEM FROM THEIR CORRECT LINE AND LEVEL.
  - TYPE E BEDDING TO BE USED WHERE MINIMUM COVER OR GREATER IS PROVIDED TO FLEXIBLE PIPES.
  - FOR PIPES IN ROADWAYS WHERE COVER IS LESS THAN 1200mm BUT GREATER THAN 900mm TYPE G BEDDING TO BE USED.
  - FOR PIPES IN ROADWAYS WHERE COVER IS LESS THAN 900mm TYPE X BEDDING TO BE USED.
  - FOR PIPES IN OPEN SPACES, FOOTPATHS NOT ADJACENT TO ROADS AND GARDENS WHERE MINIMUM COVER OR GREATER IS NOT ACHIEVED, TYPE G BEDDING TO BE USED.
  - ALL MANHOLES TO BE CONSTRUCTED WITH PRECAST CONCRETE RINGS IN ACCORDANCE WITH RELEVANT ENGINEERS DETAILS DRAWING.
  - PROPRIETARY CONNECTIONS TO BE USED THROUGHOUT.
  - ALL JOINTS TO BE WATER TIGHT TO CL 504 SUB CLAUSE 3 OF THE MSA SPECIFICATION FOR ROADWORKS.
  - MANHOLES WITHIN PAVING TO BE D400 AND RECESSED TO RECEIVE PAVIORS.
  - MANHOLES IN TARMAC/GRASSED AREAS TO BE NON ROCK D400 LOCKABLE MANHOLES.
  - TRENCHES IN EXISTING SURFACES TO BE SAW CUT.
  - IF CONSTRUCTING MANHOLE CHAMBERS USING PRECAST CONCRETE RINGS, THE CONTRACTOR SHOULD ENSURE THAT THE JOINTS IN THE PRECAST CONCRETE RINGS ARE STAGGERED WITH THE JOINTS IN THE CONCRETE SURROUND TO REDUCE THE POSSIBILITY OF GROUND WATER INGRESS.
  - WHERE A CONNECTION IS REQUIRED TO AN EXISTING PUBLIC SEWER SYSTEM, THE CONTRACTOR MUST MAKE A FORMAL APPLICATION TO THE LOCAL AUTHORITY TO DO SO.
  - A DETAILED METHOD STATEMENT MUST BE SUBMITTED TO THE LOCAL AUTHORITY FOR APPROVAL. AT LEAST FOUR WEEKS IN ADVANCE OF THE PLANNED CONSTRUCTION WORKS.
  - WHERE NEW DRAINAGE INFRASTRUCTURE IS TO CROSS AN EXISTING ROAD, THE CONTRACTOR IS REQUIRED TO:
    - CONTACT THE RELEVANT AUTHORITIES WELL IN ADVANCE OF THE PLANNED WORKS.
    - MAKE AN APPLICATION AND PAY FOR A ROAD OPENING LICENCE IF APPLICABLE.
    - MAKE GOOD THE EXISTING ROAD TO THE SATISFACTION OF THE ENGINEER & THE RELEVANT AUTHORITIES ON COMPLETION OF THE WORKS. THE CONTRACTOR IS ADVISED TO COMPLETE AIR TESTING ON A DAILY BASIS DURING THE COURSE OF THE WORKS TO ENSURE ISOLATION OF ANY FAILED TESTS.
  - THE COMPLETE DRAINAGE WORKS SHOULD BE PROTECTED, WHERE NECESSARY, FROM LOADS IMPOSED BY CONSTRUCTION PLANT DURING CONSTRUCTION.
  - ON COMPLETION OF THE WORKS, THE CONTRACTOR MUST ENSURE ALL INTERNAL SURFACES OF THE NEW SEWERS ARE THOROUGHLY CLEANED TO REMOVE ALL DELETERIOUS MATERIAL. THIS MATERIAL MUST BE PREVENTED FROM ENTERING THE PUBLIC SEWER SYSTEM.
  - A CCTV SURVEY OF THE COMPLETED UNDERGROUND DRAINAGE NETWORK SHOULD BE CARRIED OUT BY THE CONTRACTOR ON COMPLETION OF THE WORKS. IT IS RECOMMENDED THAT THIS EXERCISE IS COMPLETED BEFORE FINAL SURFACE COURSES AND FINISHES ARE APPLIED IN CASE ANY REMEDIAL WORKS ARE REQUIRED TO THE DRAINAGE.
  - WHERE FOUR CONNECTIONS PASS OVER ATTENUATION TANKS, VERTICAL SEPARATION DISTANCE IS TO BE 300MM.
- LEGEND**
- MANHOLE ASSOCIATED ID AND PROPOSED SURFACE WATER PIPE (INCL. DIAMETER AND GRADIENT)
  - PERMEABLE PAVING WITH PERFORATED PIPE AND INSPECTION CHAMBERS TO EITHER SIDE
  - PERMEABLE PAVING (ROAD)
  - ATTENUATION TANK LOCATIONS (IF ATTENUATION UNITS ARE TO BE CONSTRUCTED)
  - TREE PITS (LOCATIONS INDICATIVE ONLY AND TO BE FULLY COORDINATED WITH THE LANDSCAPING LAYOUT & PUBLIC LIGHTING PLAN)
- PROJ. DRAWING CONTROL**
- |     |       |    |  |
|-----|-------|----|--|
| NO. | DATE  | BY | ISSUED FOR   |
| 06  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
| 05  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
| 04  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
| 03  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
| 02  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
| 01  | 05/22 | EX | Issued for RPA/Registered Architects Layout included |
- Engineering Services Ltd**  
 21059 - P - 102  
 Surface Water Layout  
 Waterworks Development  
 Millerton Co. Cork for Havenfalls Ltd

1 Proposed Surface Water Layout  
 Scale: 1:500

# APPENDIX D

# 18 WATERROCK MIDLETON LANDSCAPE DESIGN DEVELOPMENT - GREEN INFRASTRUCTURE



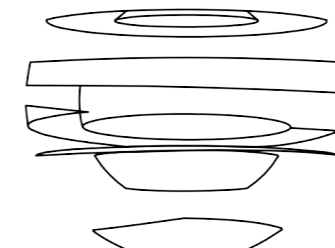
- Permeable paving
- Permeable paving (Road)
- Attenuation cell locations
- Swales

### 3. WATER MANAGEMENT:

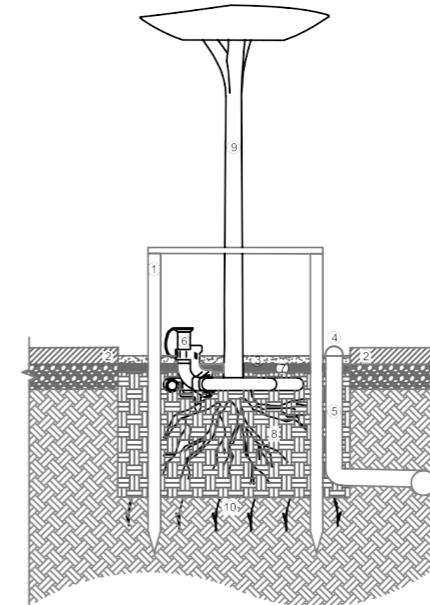
The surface water drainage strategy has been designed by O'Shea Leader Consulting Engineers to ensure that storm water flows will be restricted to greenfield runoff rates in the northern portion of the site and there will be no potential for the impairment of water quality due to increased storm water run off through the instalment of attenuation cells and hydrocarbon interceptors with silt collection features.

These aims would be achieved by the following measures;

- protection of water quality during construction as per the recommendations contained in the Ecological Impact Assessment prepared by Malone O'Regan Environmental.



- the use of permeable paving where appropriate throughout the site, (see figure opposite & the Engineering report prepared by O'Shea Leader Consulting engineers for details).
- Bio-retention measures including tree pits, dry swales and on-line bio retention areas as per the Engineering Report prepared by O'Shea Leader Consulting Engineers.



1. Double stakes 75mm dia x 1.8m long with cross bar 75mm half round 900mm long, all pressure treated, with cushioned tie.
2. Surface water from adjacent hard surfaces to drain to the tree pit as per engineers detail design & specification.
3. Top of water level.
4. 100mm dia. overflow pipe with protective cowl 50mm max above soil level of tree pit.
5. 100mm dia perforated overflow stack & discharge pipe to storm sewer as per engineers specification.
6. 100mm dia perforated upvc drainage pipe wrapped around root area with irrigation cap.
7. 50mm layer of loose stone mulch to surface of tree pit.
8. Where possible backfill with nutrient rich, free draining in situ topsoil, min. 900mm depth. Topsoil to be free from, an excessive amount of weed seeds, roots of perennial weeds, subsoil and extraneous matter. Only use imported topsoil if suitable in situ soils are not available. Imported topsoil to be to BS 3882:2015; general purpose grade.
9. Specified tree planting.
10. Subsoil at base of pit broken up, min depth 150mm.

### BIO RETENTION TREE PIT DETAIL