

**Habitats Directive Appropriate Assessment
Screening Determination**

Proposed Housing Development at An Tamhnaigh, Clonakilty, Co. Cork.



Cork County Council
Comhairle Contae Chorcaí

Completed by: Joy Barry
Cork County Council.

Date: January 2024

This document contains the Habitats Directive Screening Determination of Cork County Council in respect of a housing scheme for 35 no. residential units, parking area and associated works at a site located to the west of Clonakilty Town Centre at An Tamhnaigh located on the Fearnhill Road in Clonakilty Town, Co. Cork. The assessment is based on project drawings and details prepared by the project design team.

In accordance with Regulation 250 of the Planning and Development Regulations, Local Authorities are required to carry out screening for appropriate assessment of proposed development to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on one or more European¹ sites. The Local Authority is required to determine that appropriate assessment of the proposed development is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on one or more European sites.

These requirements derive from Article 6(3) of the Habitats Directive which states that;

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

EU and National Guidance sets out two main stages to the assessment process which are as follows:

Stage One: Screening

The process which identifies what might be likely impacts arising from a plan or project on a European site, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. No further assessment is required where the risk of significant impacts on European sites can be objectively ruled out during the screening stage.

Stage Two: Appropriate Assessment

Where the possibility of significant impacts has not been discounted by the screening process, a more detailed assessment is required. This is called an Appropriate Assessment and requires the compilation of a **Natura Impact Statement** by the project proponent, which is a report of scientific evidence and data relating to European sites for which significant negative impacts have not been previously screened out. This is used to identify and classify any implications of the plan or project for these sites in view of their Conservation Objectives. The Appropriate Assessment must include a determination as to whether or not the project would adversely affect the integrity of any European site or sites. The plan or project may only be consented if adverse effects on the integrity of European sites can be objectively ruled out during the Appropriate Assessment process. The plan or project may not be consented on foot of an Appropriate Assessment, if it is found that it will give rise to adverse impacts on one or more European sites, or if uncertainty remains in relation to potential impacts on one or more European sites.

¹“European Site” means— (a) a candidate site of Community importance; (b) a site of Community importance; (c) a candidate special area of conservation; (d) a special area of conservation; (e) a candidate special protection area, or (f) a special protection area.

Name of the project

Proposed Housing Development at An Tamhnaigh, Clonakilty, Co. Cork.

Description of the project

The proposed project is for 35 no. dwellings, 43no. car parking spaces and associated works including footpaths, communal bin stores, bike storage, drainage, landscaping and amenity areas.

The foul wastewater from the scheme is proposed to connect to the Beechgrove wastewater infrastructure and onwards to the public foul system and conveyed to the Clonakilty Wastewater Treatment Plant.

The surface water sewer will discharge into the Beechgrove network which is attenuated in an underground tank in the green area before discharging to the main public storm water sewer. Surface water will be discharged at greenfield rates of run off and pollution controls including a hydrocarbon bypass separator will be installed within the surface water drainage system.

Site Context

The site is located on a greenfield site and is currently in agricultural use (see Figure 1 below). The site is accessed from Fernhill Road and is bounded to the west Beechgrove Housing Estate, to the east by Gaelscoil Mhichíl Uí Choileáin, to the north by existing private dwellings and to the south by the local road.

The subject site measures 0.99ha in total. The site generally slopes downwards from the north to the south.

According to EPA mapping available for the area, the Templebryan North stream (also referred to as the Clonakilty Stream runs along the southern boundary of this site in an east to west direction and meets with the River Feagle 1.3km downstream (see Figure 2). It is noted that, although mapped by the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Feagle (Clonakilty Stream_010).

The River Feagle, also known as the Clonakilty Stream (EPA waterbody Code IE_SW_20C050300) is located approximately 160m south of the proposed development site. This stream runs east before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site which is also designated as part of the Clonakilty Bay Special area of Conservation (Site Code: 0091) and Clonakilty Bay Special Protection Area (Site Code: 4081).

The site is not identified to be located within an area susceptible to flooding according to the Cork County Development Plan 2022 or the draft PFRA Flood Maps available for the site. Therefore, there are no issues in relation to flood-risk associated with the proposed development.

Fluvial 1:100 year and 1:000 within southern parts of this site.

Figure 1: Site Context (Site Location – blue dot) (CCC PEQ accessed 24/11/2023)



Figure 2: Drainage and Water Quality (EPA Mapping accessed 24/11/23)



Name and location of EU sites subject to screening

The subject site does not overlap with any European site. There are seven Natura 2000 (European) sites located within a 15km radius of the site which are considered in this document. These include:

- Clonakilty Bay SAC (Site Code: 0091) – located c.1.2km to the southeast. Potential source pathway via downstream river Feagle hydrological connectivity.
- Kilkeran Lake and Castlefcreke Dunes SAC (Site Code: 1061) located c. 6.8km to the southwest. No hydrological or other pathway.
- Courtmacsherry Estuary SAC (Site Code: 1230) located 9.3km to the southeast. No hydrological or other pathway.
- Clonakilty Bay SPA (Site Code: 4081) located c.1.2km to the southeast. Potential source pathway via downstream river Feagle hydrological connectivity.
- Galley Head to Duneen Point SPA (Site Code: 4190) located c.5.1km to the southwest. No hydrological or other pathway identified.
- Seven Heads SPA (Site Code: 4191) located c.8.6km to the southeast. No hydrological or other pathway identified.
- Courtmacsherry Bay SPA (Site Code: 4219) located c. 9.3km to the southeast. Although unlikely given the distances involved, habitats within the proposed development site could potentially provide ex situ habitats for SCI species and source pathway connector link has been identified.

The sites listed are identified in Figure 3 below relative to Clonakilty. There are no other Natura 2000 sites are within the 15km radius of the proposed project.

Figure 3: Red buffer indicates all European sites within 15kms of the proposed development location (EPA Mapping accessed 24/11/23)



Is the project directly connected with or necessary to the management of the sites listed above?

No.

Describe how the project (alone or in combination) is likely to affect the Natura 2000 Site(s)

Natura 2000 sites with a potential source-pathway connection to the application site are assessed for potential significant effects below having regard to qualifying interests, conservation objectives and existing threats and pressures in relation to these designated sites.

1. Clonakilty Bay SAC (Site Code: 0091)

Distance from Project Site: 1.2km.

Qualifying Interests:

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Annual vegetation of drift lines [1210]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150]

Conservation Objectives: To maintain the favourable conservation condition of the above listed qualifying interests.

Key Requirements to Ensure Compatibility with the Conservation Objective: Maintain quality, extent and distribution of habitat as mapped. Maintain natural processes of erosion and sedimentation. Prevent disturbance to habitat. Maintain typical species. Prevent encroachment with negative indicator species and invasive species.

Threats Pressures: Activities which could alter natural processes of erosion and sedimentation in Clonakilty Bay, or which could cause direct damage to the habitat e.g., Heavy trampling, vehicle damage, removal of substrate could interfere with the achievement of the Conservation Objective established for this site.

Potential pathway for impact: The proposed project does not require the abstraction of any resources from the SAC. Wastewater from the development will be directed to the Clonakilty WWTP, which although was recently not in compliance with its discharge license requirements, has adequate capacity to cater for the development and is not having an observable impact of WFD status of receiving waters. The development will also not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. No element of the proposed project has therefore been identified which could negatively impact the qualifying interest feature having regard to the project details, the distance of the SAC from the development site (1.3km downstream) and taking account of the requirements of its qualifying interest habitat as set out above.

2. Clonakilty Bay SPA (Site Code: 4081)

Distance from Project Site: 1.2km.

Qualifying Interests:

- Shelduck (*Tadorna tadorna*) [A048]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Curlew (*Numenius arquata*) [A160]
- Wetland and Waterbirds [A999]

Conservation Objectives: The overarching Conservation Objective for Clonakilty Bay Special Protection Area is to ensure that waterbird populations and their wetland habitats are maintained at, or restored to, favourable conservation condition.

Key Requirements to Ensure Compatibility with the Conservation Objectives: To avoid deterioration of habitats and significant disturbance; thereby ensuring the persistence of site integrity. The site should contribute to the maintenance and improvement where necessary, of the overall favourable status of the national resource of waterbird species, and continuation of their long-term survival across their natural range. The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 508 ha, other than that occurring from natural patterns of variation.

Threats Pressures: Development and land management practices have potential to impact and cause loss of habitats through habitat loss, drainage and overgrazing. Pollution from wastewater and nutrients from can cause eutrophication. Fisheries also has potential to cause algae and impacts to water quality. Fishing and recreational activities have potential to cause disturbance impacts. Activities which could have the potential to introduce invasive alien species into qualifying interest habitats are also a threat to this SPA.

Potential pathway for impact: No works are proposed within this SPA. The proposed development will not result in any significant loss of ex situ foraging or roosting habitat for SCI birds of Clonakilty Bay SPA. No activities associated with the development have the potential to cause disturbance to qualifying interest species for which this SPA is designated having regard to the distance of the SPA from the project site (1.2km) and urban development located between the site and the SPA.

Wastewater from the development will be directed to the Clonakilty WWTP, which although was recently not in compliance with its discharge license requirements, has adequate capacity to cater for the development and is not having an observable impact of WFD status of receiving waters. The development will also not comprise the operational capability of the

No element of the proposed project has been identified which could negatively impact the qualifying interest species of the Clonakilty Bay SPA, having regard to the project details, the distance of the SPA from the development site, and taking account of the requirements of its qualifying interest species.

3. Courtmacsherry Bay SPA (Site Code: 04219)

Distance from site: 9.3km

Qualifying Interests:

- Great Northern Diver (*Gavia immer*) [A003]
- Shelduck (*Tadorna tadorna*) [A048]
- Wigeon (*Anas penelope*) [A050]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Lapwing (*Vanellus vanellus*) [A142]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Wetland and Waterbirds [A999]

Conservation Objectives: Maintain favourable conservation condition – all species. Maintain the favourable conservation condition of the wetland habitat in Courtmacsherry Bay SPA as a resource for the regularly occurring migratory birds that utilise it.

Threats Pressures: Grazing, Disposal of household / recreational facility waste and Nautical sports.

Potential pathway for impact: None identified. No works are proposed within this SPA. No activities associated with the development have the potential to cause disturbance to qualifying interest species for which this SPA is designated having regard to the distance of the SPA from the project site (9.8km). No element of the proposed project has been identified which could negatively impact the qualifying interest species of the Courtmacsherry Bay SPA, having regard to the project details, the distance of the SPA from the development site, and taking account of the requirements of its qualifying interest species.

Therefore, it can be concluded that the project does not pose a risk of significant adverse effects to the integrity of any Natura 2000 site, alone or in combination with other plans or projects.

Are there other projects or plans that together with the project being assessed that could affect these sites (provide details)?

No potential for impacts identified, therefore the proposed project does not pose a threat of contributing to effects which could be significant when considered in combination with other impact sources.

Cork County Council evaluation and overall conclusion that there are no significant effects on European Sites foreseen as a result of the proposal.

In accordance with Section 177S of the Planning and Development Act 2000 (as amended) and

on the basis of the objective information provided in this report, it is concluded that the proposed project does not pose a risk of causing significant negative any EU site for the following reasons:

- No works are proposed within any of the listed European sites above.
- No direct loss, alteration or fragmentation of habitats will occur within any EU sites;
- There are no hydrological linkages between the project site and any EU site;
- The site is located sufficiently distant from any EU site to be satisfied that there is no risk of activities associated with the project causing disturbance to qualifying habitats or species.

It is therefore determined that a Stage 2 Appropriate Assessment under Section 177V of the Planning and Development Act 2000 is not required.



DixonBrosnan
environmental consultants

Report in Support of Appropriate Assessment
Screening

Proposed Residential Development at An
Tamhnaigh, Clonakilty, Co. Cork

On Behalf of
Walsh Design Group

December 2023

www.dixonbrosnan.com

DixonBrosnan

environmental consultants

Project	Report in Support of Appropriate Assessment Screening for Proposed Residential Development at An Tamhnaigh, Clonakilty, Co. Cork	
Client	Walsh Design Group	
Project Ref.	23078	
Report No.	23078.02	
Client Ref.	-	
Date	Revision	Prepared By
02/08/23	First Draft	Carl Dixon BSc MSc
27/10/23	Second Draft	Sorcha Sheehy BSc PhD
05/12/23	Issue to client	
DixonBrosnan Lios Ri Na hAoine, 1 Redemption Road, Cork. Tel 086 851 1437 carl@dixonbrosnan.com www.dixonbrosnan.com		
<small>This report and its contents are copyright of DixonBrosnan. It may not be reproduced without permission. The report is to be used only for its intended purpose. The report is confidential to the client, and is personal and non-assignable. No liability is admitted to third parties. ©DixonBrosnan 2023.</small>		

Table of Contents

1. Introduction	4
1.1 Background	4
1.2 Aim of Report	4
1.3 Authors of Report	5
2. Regulatory Context and Appropriate Assessment Procedure	6
2.1 Regulatory Context	6
2.2 Appropriate Assessment Procedure	7
3. Receiving Environment	8
3.1 Existing site	8
3.2. Proposed Development	9
3.3 Surface Water	10
3.4 Wastewater	10
4. Screening	11
4.1 Introduction	11
4.2 Study Area and Scope of Appraisal	11
4.3 Field Study	12
4.4 Source-Pathway-Receptor Model	12
4.5 Likely Significant Effect	13
4.6 Screening Process	13
4.7 Desktop Review	14
5. European Sites	14
5.1 Designated sites within Likely Zone of Impact	14
5.2 Clonakilty Bay SAC	7
5.3 Clonakilty Bay SPA	7
5.4 Courtmacsherry Bay SPA	7
5.5 Features of interests and conservation objectives.	8
6. Water Quality data	10
6.1 River Basin Management Plan for Ireland 2022-2027 (3 rd Cycle)	10
6.2 Urban Wastewater Treatment Directive	12
7. Site Surveys	13
7.1 Habitats	13
7.2 Birds	17

7.3. Invasive Species	18
8. Potential Impacts	19
8.1 Potential impacts from loss of habitat	19
8.2 Potential impacts from noise and disturbance	20
8.3 Potential impacts from surface water runoff	20
8.4 Impacts from discharges of wastewater during operation	21
8.5 Spread of Invasive Species.....	23
8.6 In-combination Impacts.....	23
9. Screening conclusion and statement	26
References	27
Appendices	28

1. Introduction

1.1 Background

The information in this report has been compiled by DixonBrosnan on behalf of the applicant. It provides information on and assesses the potential for a Proposed Residential Development at An Tamhnaigh, Clonakilty, Co. Cork, to impact on any European sites within its likely zone of impact. The information in this report forms part of and should be read in conjunction with other planning application documentation.

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

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

1.2 Aim of Report

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

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

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

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018);
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission (EC), 2001);
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC* (European Commission, (EC) 2007);
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10* (Department of Environment, Heritage and Local Government, 2010);
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive* (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
- *Commission notice Guidance document on wind energy developments and EU nature legislation*, (EC 2020);
- *Communication from the Commission on the precautionary principle. European Commission (2000)*
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance (EC 2021) and*
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021).*

1.3 Authors of Report

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

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and

ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

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

2. Regulatory Context and Appropriate Assessment Procedure

2.1 Regulatory Context

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

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

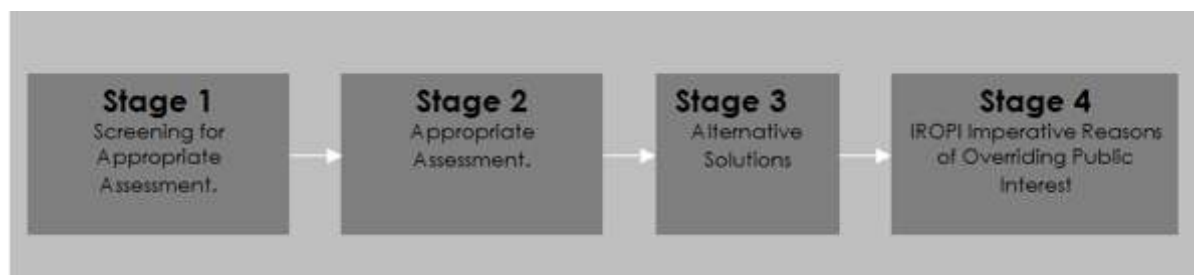
Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely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

The possibility of a significant effect on a designated or "European" site has generated the need for an appropriate assessment to be carried out by the competent authority for the purposes of Article 6(3). A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually

or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

2.2 Appropriate Assessment Procedure

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



The stages are as follows:

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

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

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

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

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

3. Receiving Environment

3.1 Existing site

The proposed development site is located to the west of Clonakilty town centre just off the Fernhill Road (R588) (**Figure 1**). The site is accessed by a local road to south which also provides access to the Beechgrove Housing Estate and Gaelscoil Mhichíl Uí Choileáin. The site is bounded to the west by the Beechgrove Housing Estate, to the east by Gaelscoil Mhichíl Uí Choileáin, to the north by existing private dwellings and to the south by the local road. Within the wider landscape, lands to the south are dominated by the urban infrastructure of Clonakilty town, while lands to the north are largely agricultural.

The proposed development site which is approximately 0.99ha is a greenfield site, currently used as agricultural land. The site generally slopes downwards from the north to the south. The high point of approximately 24.10m is at the top of a low mound in the north of the site and the low point of approximately 14.30m is at the southern boundary, along the edge of the local road.

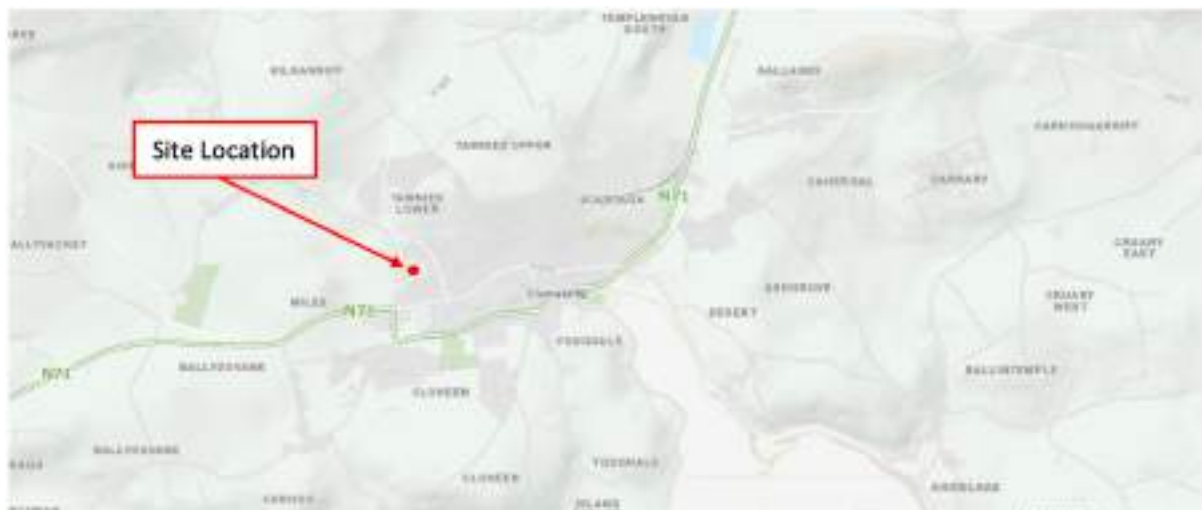


Figure 1. Location of proposed development site | Source OSI

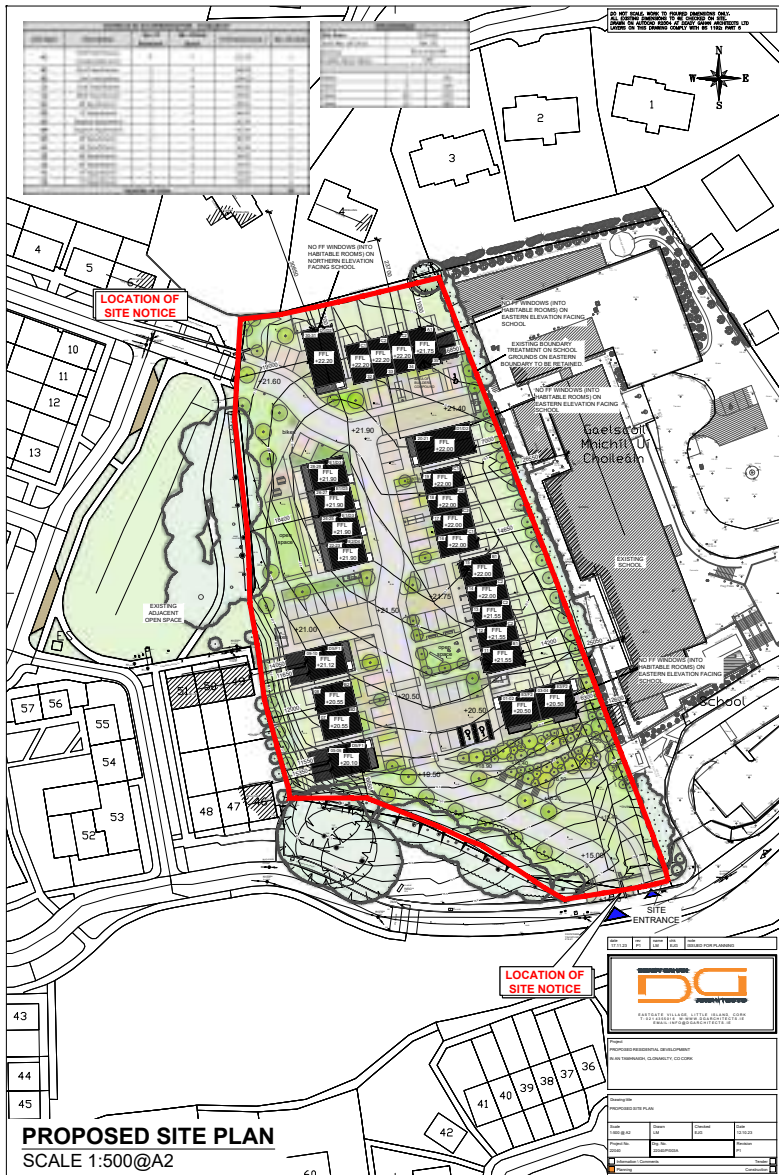


Figure 2. Proposed development site layout | Source Deady Gahan Architects

3.2. Proposed Development

The Proposed Development is for:

The construction of 35 dwelling units on a 0.99 Ha site, comprising:

- 1 four-bed house,
- 4 three-bed houses,
- 10 two-bed houses,
- 6 two-bed duplex apartments,

- 4 two-bed ground-floor apartments,
- 4 one-bed first floor apartments, and
- Six one-bed ground floor apartments

43 car parking spaces, including 3 designated for reduced mobility access,

A range of units include universal design;

All other associated ancillary development and works including footpaths, communal bin stores, bike storage, drainage, landscaping and amenity areas

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

3.3 Surface Water

The proposed storm sewer collection system consists of a 100 mm diameter pipe collection network around each house in accordance with TGD part H discharging to 225mm diameter uPVC sewer or larger under the development's streets. The surface water network layout is shown in drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-002 and the typical details for the surface water infrastructure are shown on drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-500.

The surface water sewers have been designed using the Causeway Flow design software and the Wallingford procedure for the design and analysis of urban drainage. The surface water system for the development is a single network falling generally from north to south, exiting the development at the proposed entrance and discharging to the Beechgrove network at an existing manhole in the public roadway just west of the entrance.

The Beechgrove network falls generally from north to south and runoff from the development is attenuated in an underground tank in the green area to the south before the network continues southwards through the Woodlands Development. The discharge rate from the proposed development will be 3.4 litres/sec. As the proposed network will tie into the Beechgrove infrastructure, an extra 3.4 litres/sec will flow through the existing attenuation tank and so it will be necessary to upgrade the flow control at the tank's outlet to allow the increased flow and prevent overtopping in the network.

3.4 Wastewater

The layout of the proposed wastewater drainage network for the development is shown on WDG drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-002 and the typical details for the wastewater infrastructure are shown on drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-501. 2 separate conventional piped, gravity sewer networks are proposed.

The southern network falls towards the centre of the development and then connects to the Beechgrove wastewater infrastructure, to the west, at the existing manhole labelled F13. The northern network falls to the north and west from the centre of the development and connects to the existing manhole labelled S7 in the north-eastern corner of the Beechgrove Development.

All sewers within the curtilage of individual houses have been designed and are to be installed in accordance with TGD Part H (2010) and will consist of 100 mm diameter uPVC Sewers from individual houses laid to falls of min 1:60 to connect to a 150mm and 225mm uPVC sewer to be laid under the estate street. Inspection chambers will be constructed within 1m of the boundary of each private property in accordance with Irish Water Standard Details.

All wastewater sewers in the public realm have been designed in compliance with Irish Water's Code of Practice for Wastewater Infrastructure – A Design and Construction Guide for Developers (Revision 2) July 2020. All construction details within the public realm will be in accordance with Irish Water, Wastewater Infrastructure Standard Details (Revision 4), July 2020.

A pre-connection enquiry was submitted to Irish Water to assess the feasibility of providing a connection to the site. Subsequently, Irish Water issued a confirmation of feasibility for the development.

4. Screening

4.1 Introduction

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

The aims of this section are to:

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

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

4.2 Study Area and Scope of Appraisal

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

The likely zone of impact (Zol) comprises the area within which the proposed development may potentially affect the conservation objectives (or qualifying interests) of a European site.

There is no recommended likely zone of impact, and guidance from the National Parks and Wildlife Service (NPWS) recommends that the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative).

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

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

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

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

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

4.3 Field Study

Site walkovers surveys were carried out on the 20th September 2022 and 6th April 2023 to identify the habitats, flora and fauna present at the site. The surveys assessed the potential for all Qualifying Interests (QIs)/ Special Conservation Interests (SCIs) of European sites and third schedule invasive species to occur within the proposed site.

4.4 Source-Pathway-Receptor Model

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

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives.

- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor.
- A ‘receptor’ is defined as the SCI of SPAs or QI of SACs for which conservation objectives have been set for the European sites being screened.

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

4.5 Likely Significant Effect

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

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

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

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

4.6 Screening Process

The Screening for Appropriate Assessment incorporates the following steps:

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

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

4.7 Desktop Review

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

- National Parks & Wildlife Service (NPWS) - www.npws.ie
- Environmental Protection Agency (EPA) – www.epa.ie
- National Biodiversity Data Centre (NBDC)– www.biodiversityireland.ie
- *Cork County Biodiversity Action Plan 2009-2014* (Cork County Council 2009);
- *Cork County Development Plan 2022-2028* (Cork County Council 2022);
- Bat Conservation Ireland – <http://www.batconservationireland.org>
- Birdwatch Ireland - <http://www.birdwatchireland.ie/> and
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>.

5. European Sites

5.1 Designated sites within Likely Zone of Impact

In accordance with the European Commission Methodological Guidance (EC 2018), a list of European sites that can be potentially affected by the proposed development has been compiled. All candidate SACs (cSAC) and SPAs sites within the likely zone of impact of the proposed development have been identified in **Table 1** and shown in **Figure 3** and **Figure 4**.

The River Fealge (aka Clonakilty (Stream) EPA waterbody Code IE_SW_20C050300) is located approximately 160m south of the proposed development site (See **Figure 4**). This stream runs east before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. It is noted that, although mapped by the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Fealge. Contaminated surface water runoff could potentially impact on water quality within these downstream receptors and spread invasive species. During operation, wastewater from the proposed development will discharge to Clonakilty Bay via Clonakilty and Environs wastewater treatment plant (WWTP). Habitats within the proposed development site could potentially provide *ex situ* habitats for SCI species of Clonakilty Bay SPA and Courtmacsherry Bay SPA. The proposed development could therefore lead to the loss of *ex situ* foraging habitats for SCI birds.

Therefore, a potential source-pathway-receptor link has been identified between the source (the proposed development) and the receptors (Clonakilty Bay SAC, Clonakilty Bay SPA and Courtmacsherry Bay SPA) via a potential pathway (runoff/discharge of surface water during construction/operation, wastewater discharges during operation, loss/disturbance of *ex situ* foraging habitats, spread of invasive species) (See **Table 1** for details). Further information on these European sites is provided below.

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

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
Special Area of Conservation (SAC)				
Clonakilty Bay SAC	000091	<p>Habitats</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>2150 Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)*</p>		<p>1.2km southeast (1.3km downstream). The River Fealge is located approximately 160m south of the proposed development site. This stream runs east before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. Therefore, during construction and operation, contaminated surface water runoff could potentially impact on water quality within the River Fealge and Clonakilty Bay SAC. Construction works could also spread invasive species outside the proposed development site and impact on the SAC downstream.</p> <p>(It is noted that, although mapped by the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Feagle).</p> <p>During operation, wastewater from the proposed development will discharge to the Clonakilty Bay Via Clonakilty Wastewater treatment plant (WWTP).</p> <p>Given the location of the proposed development relative to the European site boundary and the identified downstream hydrological connectivity, a potential source pathway connector link has been identified.</p>
Kilkeran Lake and Castlefreke Dunes SAC	001061	<p>Habitats</p> <p>1150 Coastal lagoons*</p> <p>2110 Embryonic shifting dunes</p>		6.8km southwest. No hydrological or other pathway.

European 2000 site	Site Code	Qualifying Interests/Special Conservation Interests	Distance at closest point and potential source-pathway-receptor link
		2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*	
Courtmacsherry Estuary SAC	001230	Habitats 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1220 Perennial vegetation of stony banks 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*	9.3km southeast. No hydrological or other pathway

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
Special Protection Area (SPA)				
Clonakilty Bay SPA	004081	Birds A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A160 Curlew (<i>Numenius arquata</i>) Habitats Wetlands		<p>1.2km southeast (1.3km downstream). The River Fealge is located approximately 160m south of the proposed development site. This stream runs east-southeast before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. Therefore, during construction and operation, contaminated surface water runoff could potentially impact on water quality within the River Fealge and Clonakilty Bay SPA. Construction works could also spread invasive species outside the proposed development site and impact on the SPA downstream.</p> <p>(It is noted that, although mapped by the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Fealge).</p> <p>During operation, wastewater from the proposed development will discharge to the Clonakilty Bay Via Clonakilty Wastewater treatment plant (WWTP).</p> <p>Habitats within the proposed development site could potentially provide <i>ex situ</i> habitats for SCI species.</p> <p>Given the location of the proposed development relative to the European site boundary as well as the potential for <i>ex situ</i> SCI species to occur within proposed development, a potential source pathway connector link has been identified.</p>
Galley Head to Duneen Point SPA	004190	Birds A346 Chough (<i>Pyrrhocorax pyrrhocorax</i>)		5.1km southwest. No hydrological or other pathway

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
Seven Heads SPA	004191	Birds		8.6km southeast. No hydrological or other pathway
		A346 Chough (<i>Pyrrhocorax pyrrhocorax</i>)		
Courtmacsherry Bay SPA	004219	Birds		9.3km southeast. Although unlikely given the distances involved, habitats within the proposed development site could potentially provide <i>ex situ</i> habitats for SCI species.
		A149 Dunlin (<i>Calidris alpina</i>)		
		A140 Golden Plover (<u><i>Pluvialis apricaria</i></u>)		Therefore, a potential source pathway connector link has been identified.
		A160 Curlew (<i>Numenius arquata</i>)		
		A069 Red-breasted Merganser (<i>Mergus serrator</i>)		
		A003 Great Northern Diver (<i>Gavia immer</i>)		
		A156 Black-tailed Godwit (<i>Limosa limosa</i>)		
		A050 Wigeon (<i>Anas penelope</i>)		
		A182 Common Gull (<i>Larus canus</i>)		
		A157 Bar-tailed Godwit (<i>Limosa lapponica</i>)		
		A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>)		
		A048 Shelduck (<i>Tadorna tadorna</i>)		
		A142 Lapwing (<i>Vanellus vanellus</i>)		
		Habitats		
		Wetlands		

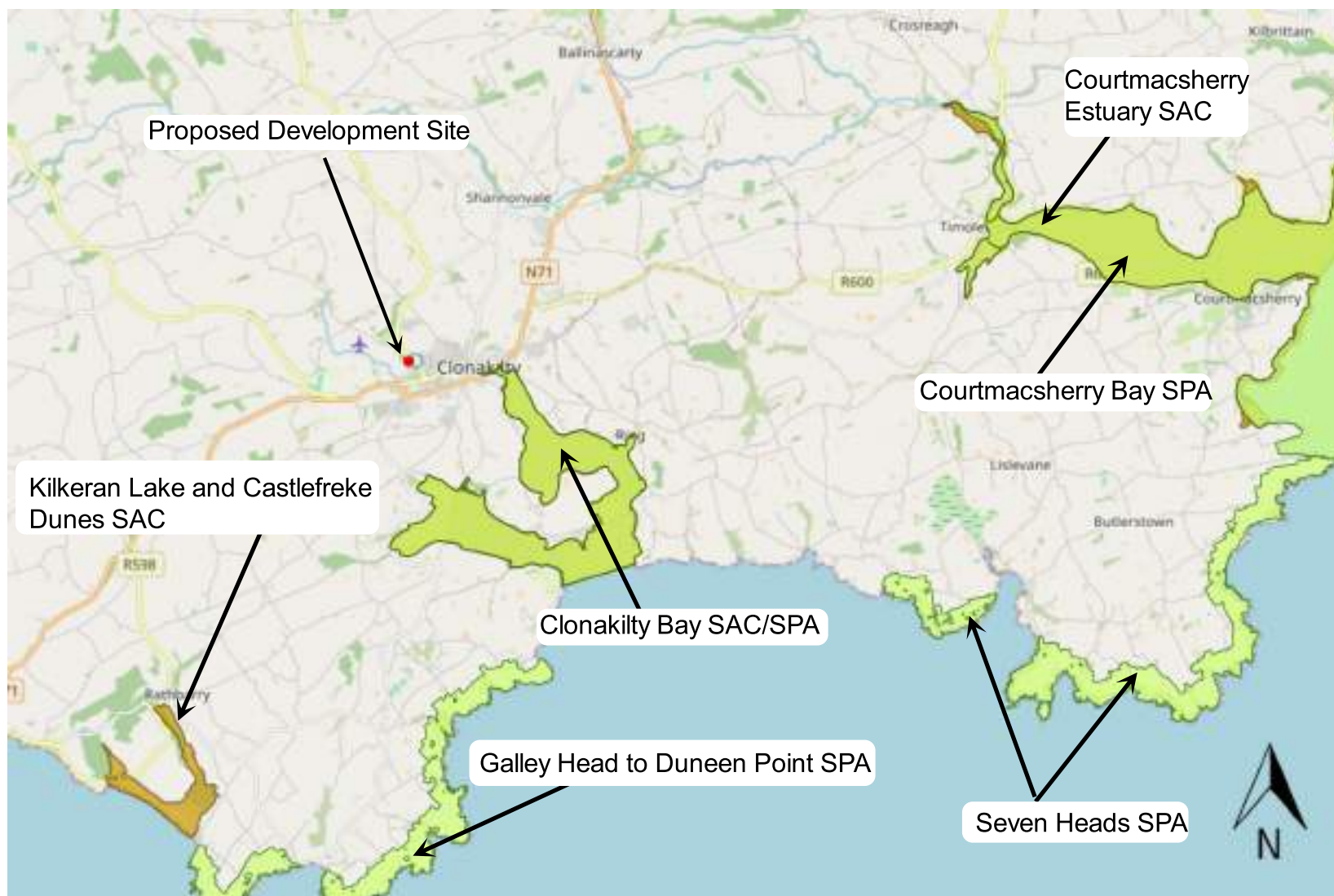


Figure 3. European Sites within zone of influence proposed development site | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | Not to scale



Figure 4. Location of proposed development site (approximate boundary) and Templebryan North Stream (now culverted near proposed development site (X shows historical location) relative Clonakilty Bay SAC (brown and green shading) and Clonakilty Bay SPA (Green shading) Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | Not to scale

5.2 Clonakilty Bay SAC

Clonakilty Bay SAC in west Cork is an intertidal expanse that stretches from Clonakilty to the open sea, and comprises two small estuaries separated by Inchydoney Island. The site also includes adjacent sand dunes and inland marshes, and therefore is a coastal complex with a good diversity of habitats. This site is of considerable scientific interest because it contains a good diversity of coastal habitats. These habitats show a succession from salt to freshwater influences and include six which are listed on Annex I of the E.U. Habitats Directive. Its value is enhanced considerably by the birdlife it supports. The occurrence of Black-tailed Godwit in internationally important numbers is particularly significant. The site also supports nationally important numbers of seven other species of waterfowl as well as two species listed on Annex I of the E.U. Birds Directive. A full site synopsis for this European site is included in **Appendix 1**.

5.3 Clonakilty Bay SPA

Clonakilty Bay is a wetland complex that stretches from the town of Clonakilty to the open sea. It comprises two small estuarine bays, Clonakilty Harbour and Muckcross Strand, separated by Inchydoney Island. Several small rivers flow into the site, notably the Fealge River. At low tide, substantial areas of sand and mud flats are exposed. The construction of a causeway across the inner part of Muckcross Strand created an extensive wetland complex, with brackish characters, known as Cloheen Strand Intake. The site includes a well-developed sand dune system.

Clonakilty Bay SPA supports an internationally important population of *Limosa limosa*, and nationally important numbers of *Tadorna tadorna*, *Charadrius hiaticula* and *Tringa nebularia*. A range of other species occur in numbers of regional importance, including *Anas penelope*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Vanellus vanellus*, *Calidris alpina* and *Numenius arquata*. A small population of *Limosa lapponica* is present. The site is visited by passage waders, with regular concentrations of *Calidris minuta* and *Calidris ferruginea*. In recent years *Egretta garzetta* has become regular at the site. *Asio flammeus* is a regular winter visitor. The site provides both feeding and roosting areas for the waterfowl species and habitat quality is generally good. Wintering bird populations have been well monitored since the 1970s and there have been specific studies on the *Limosa limosa* population. A substantial part of the site is now state-owned. A full site synopsis for this European site is included in **Appendix 1**.

5.4 Courtmacsherry Bay SPA

Courtmacsherry Bay is situated approximately 12 km south of Bandon and immediately west of the village of Timoleague in west Co. Cork. The site, which is largely estuarine in nature, consists of the drowned valley of the Argideen River that is now filled with sediment. This results in extensive mudflats and areas of saltmarsh. Most of the mudflats are unvegetated but Cord-grass *Spartina anglica* occurs in places. The estuary of the Kilbrittain River in the north-east of the site holds the best area of salt marsh. The seaward boundary of the site stretches from Coolmain Point to Barry Point and includes Coolmain Bay and Broadstrand Bay.

Courtmacsherry Bay is an important site for wintering waterfowl. It supports internationally important numbers of *Limosa limosa* and nationally important numbers of eleven other species: *Gavia immer*, *Pluvialis apricaria*, *Tadorna tadorna*, *Anas penelope*, *Mergus serrator*,

Vanellus vanellus, *Calidris alpina*, *Limosa lapponica*, *Numenius arquata*, *Larus ridibundus* and *Larus canus*. It is among the top ten Irish sites for *Larus canus*. The population of *Limosa limosa* is substantial (3.7% of the all-Ireland total) and of special note because, despite its relatively small size, the site is among the top ten Irish sites for this species. *Haematopus ostralegus* and *Tringa nebularia* also occur in significant numbers. A full site synopsis for this European site is included in **Appendix 1**.

5.5 Features of interests and conservation objectives.

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

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

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when population data on the species concerned indicate that it is maintaining itself, and 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.

The current conservation objectives for Clonakilty Bay SAC, Clonakilty Bay SPA and Courtmacsherry Bay SPA are detailed in:

- NPWS (2014) Conservation Objectives: Clonakilty Bay SAC 000091. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Conservation Objectives: Courtmacsherry Bay SPA 004219. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- NPWS (2014) *Conservation Objectives: Clonakilty Bay SPA 004081. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

The species and/or habitats listed as qualifying interests for the Courtmacsherry Estuary SAC, Courtmacsherry Bay SPA and Clonakilty Bay SPA are included in **Tables 2 to 4.**

Table 2. Qualifying habitats Clonakilty Bay SAC

Habitat Code	Habitat	Conservation objective
1140	Mudflats and sandflats not covered by seawater at low tide	Maintain
1210	Annual vegetation of drift lines	Maintain
2110	Embryonic shifting dunes	Maintain
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	Maintain
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	Restore
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	Maintain

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

Table 3. Qualifying species Clonakilty Bay SPA

Species code	Species	Scientific name	Conservation objective
A048	Shelduck	<i>Tadorna tadorna</i>	Maintain
A149	Dunlin	<i>Calidris alpina</i>	Maintain
A156	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
A160	Curlew	<i>Numenius arquata</i>	Maintain
A999	Wetland and Waterbirds		Maintain

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

Table 4. Features of Interest for the Courtmacsherry Bay SPA

Species code	Species	Scientific name	Conservation objective
A003	Great Northern Diver	<i>Gavia immer</i>	Maintain
A048	Shelduck	<i>Tadorna tadorna</i>	Maintain
A050	Wigeon	<i>Anas penelope</i>	Maintain
A069	Red-breasted Merganser	<i>Mergus serrator</i>	Maintain
A140	Golden Plover	<i>Pluvialis apricaria</i>	Maintain
A142	Lapwing	<i>Vanellus vanellus</i>	Maintain
A149	Dunlin	<i>Calidris alpina</i>	Maintain
A156	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
A157	Bar-tailed Godwit	<i>Limosa lapponica</i>	Maintain
A160	Curlew	<i>Numenius arquata</i>	Maintain

Species code	Species	Scientific name	Conservation objective
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Maintain
A182	Common Gull	<i>Larus canus</i>	Maintain
A999	Wetland and Waterbirds		Maintain

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

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

6. Water Quality data

6.1 River Basin Management Plan for Ireland 2022-2027 (3rd Cycle)

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

The EPA has published an updated draft Catchment Assessment for each of our 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was published in July 2022, aims to build on the progress made during the second cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. It is noted that, although mapped by

the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Feagle (Clonakilty Stream_010). Data relating to the watercourses within the study area is provided in **Table 5** and the location of these shown in **Figure 5**.

Table 5. Water Framework Directive Data – Relevant data

Bandon Ilen (HA 20)			
<p>This catchment includes the area drained by the Rivers Bandon and Ilen and all streams entering tidal water between Templebreedy Battery and Mizen Head, Co. Cork, draining a total area of 1,803km². The largest urban centre in the catchment is Bandon. The other main urban centres in this catchment are Kinsale, Clonakilty, Skibbereen and Dunmanway. The total population of the catchment is approximately 71,211 with a population density of 39 people per km². Similarly to the surrounding Munster catchments, this catchment is dominated by east–west trending sandstone ridges. In this catchment the low lying parts are predominantly underlain by mudstones and the mountainous peninsular areas by old red sandstone..</p> <p>The proposed development site is located within the Clonakilty[Stream]_SC_010 sub catchment. Three out of six river water bodies are AT RISK, Carhoo_010, Tinneel Stream_010 and Ownahinchy_010 due to Moderate biological status. Hayes Cross Roads_010 and North Ring Curraghgrane_010 are under REVIEW due to their unassigned status.</p> <p>Point sources are the significant pressures on Tinneel Stream_010, agriculture is the significant pressure on Ownahinchy_010, and hydro-morphological impacts (channel modification) appear to be driving status within Carhoo_010. Local catchment assessments are required for the REVIEW water bodies so as to determine whether any issues exist.</p>			
Sub-catchment: Clonakilty[Stream]_SC_010			
Name	River Risk	Waterbodies	WFD Status 2016-2021
Clonakilty Stream_010	At risk		Moderate
Clonakilty Harbour	At risk		Poor
			Pressures
			n/a
			Agriculture

Source: wfdireland map system & www.catchments.ie



Figure 5. WFD catchments (3rd cycle) in the vicinity of the proposed development site Source: EPA Envision mapping (<https://gis.epa.ie/EPAMaps/>) | not to scale

6.2 Urban Wastewater Treatment Directive

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

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

As part of the proposed development wastewater discharging from the proposed development will be conveyed to the Clonakilty and Environs Wastewater Treatment Plant (WWTP) (D0051-01) for treatment prior to discharging into the Clonakilty Bay.

7. Site Surveys



7.1 Habitats

Site surveys were carried out on the 20th September 2022 and 6th April 2023 to identify the habitats, flora and fauna present at the site. The terrestrial and aquatic habitats within or adjacent to the proposed development site were classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I/qualifying habitats, where required. Habitat surveys were carried out at the proposed development site by Scott Cawley in 2017 as part of the ecological assessment for the Beechgrove Housing Estate. These surveys are referred to where relevant.

A current overview of habitats recorded within and adjacent to the proposed development site are shown in **Figure 6** and these habitats are described in **Table 6**. Site photographs are included below.

Table 6. Habitat recorded within the proposed development site and their relative value.

Habitat	Comments
Improved agricultural grassland GA1	<p>The proposed development site comprises of one large field surrounded by green mesh fencing. This is classified as improved agricultural grassland which in the absence of active management has become slightly more diverse. Species noted include Ragweed, Spear thistle, Common mouse-ear, Clovers, Meadow grass, Perennial rye grass, Sorrel, Broad leaved dock, Ribwort plantain, Brassicas, Hogweed and Creeping buttercup.</p> <p>It is noted that during the Scott Cawley surveys of the proposed development site in 2017, this area was also classified as improved agricultural grassland.</p>  <p>Plate 1. Improved agricultural grassland</p>
Treeline WL2	<p>A treeline runs along the southern boundary of the site and includes Holly, Hawthorn and Sycamore. Understorey species include Nettle, Lesser celandine, Herb Robert, Ivy, Cleavers, Bramble and Hogweed</p> <p>A rookery is located within this treeline with active nesting recorded during the April site survey. Approximately 15 nests were recorded within this area.</p> <p>Along the western boundary in new mesh fence has been created which separates the proposed development site from the Beechgrove Housing Estate. A copse of</p>

Habitat	Comments
	<p>mature Beech has been retained within the Beechgrove Housing Estate and this supports a substantial rookery. Approximately 45 nests are located within this area, to the immediate west of the proposed development site boundary. A number of these trees and nests overhang the proposed development site boundary.</p>  <p>Plate 2. Rookery on southern treeline.</p>  <p>Plate 3. Treeline within Beechgrove Estate outside western boundary of proposed development site. Rookery present</p>
Buildings and artificial surfaces BL3/Recolonising bare ground ED3	<p>Part of the site is being used as a construction compound for building works at Gaelscoil Mhichíl Uí Choileáin. There are large areas of bare ground where construction materials are stored including blocks, pallets, insulation material, sand and other building material. Portacabins, topsoil stockpiles and areas of hardcore for parking are also present. Some recolonisation by grass and common herbaceous species is occurring in this area, however it is mostly unvegetated.</p> <p>A temporary access road leading to the site compound runs along the eastern boundary of the site.</p> <p>The northern boundary of the site is currently delineated by construction fencing which separates this proposed development site from a garden to the north.</p>

Habitat	Comments
	 <p data-bbox="507 813 1158 846">Plate 4. Construction compound at north of the site</p>  <p data-bbox="507 1388 1158 1422">Plate 5. Hardcore track along eastern boundary</p>



Figure 6. Habitats recorded within proposed development site

7.2 Birds

The NBDC has recorded the following Annex I bird species within W34 Bar-tailed Godwit (*Limosa lapponica*), Kingfisher (*Alcedo atthis*), Dunlin (*Calidris alpina*), Golden Plover (*Pluvialis apricaria*), Hen Harrier (*Circus cyaneus*), Little Egret (*Egretta garzetta*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*), Red-billed Chough (*Pyrrhocorax pyrrhocorax*), Sandwich Tern (*Sterna sandvicensis*) and Whooper Swan (*Cygnus cygnus*). There is no suitable habitat for these Annex I species within the proposed development site boundary.

Bird surveys for general bird usage were carried out in conjunction with habitat surveys on the 20th September 2022 and 6th April 2023. Bird species listed in Annex I of the Birds Directive are considered a conservation priority. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation (Gilbert *et al.* 2021). Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Species recorded during the site surveys are shown in **Table 7**.

Table 7. Bird Species recorded during site surveys

Species		Birds Directive Annex	BOCCI	
Common name	Latin name	I	Red List	Amber List
Blackbird	<i>Turdus merula</i>			
Blue Tit	<i>Cyanistes caeruleus</i>			
Chaffinch	<i>Fringilla coelebs</i>			
Dunnock	<i>Prunella modularis</i>			
Goldfinch	<i>Carduelis carduelis</i>			
Great Tit	<i>Parus major</i>			
Robin	<i>Erithacus rubecula</i>			
Rook	<i>Corvus frugiligus</i>			
Wood Pigeon	<i>Columba palumbus</i>			
Wren	<i>Troglodytes troglodytes</i>			

The proposed development site is of local value for terrestrial bird species that are relatively common in the Irish countryside. The overgrown grassland habitat at the site is of minimal value for birds. No grassland nesting species were recorded. The treeline at the southern boundary of the site provides the most valuable habitats for nesting birds within the proposed

development site. A rookery, with approximately 15 nests was recorded within this treeline. This forms part of a larger rookery with the Beechgrove Housing Estate.

The grassland habitat at the proposed development site is surrounded by buildings and vegetation and is not of significant value as roosting or foraging habitat for SCI birds. The overgrown nature of the grassland is also suboptimal for wading bird foraging.

7.3. Invasive Species

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

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

The National Biodiversity Data Centre (NBDC) online database provides data on the distribution of mammals, birds, and invertebrates within the 10 km grid squares. The site of the proposed development lies within Ordnance Survey National Grid 10km square W34. The NBDC lists a number of terrestrial high impact invasive species from grid square W34 (**Table 8**).

Table 8. NBDC list of high impact invasive species.

Species group	Species name
Flatworm (Turbellaria)	<i>Arthurdendyus triangulatus</i>
flowering plant	Canadian Waterweed (<i>Elodea canadensis</i>)
flowering plant	Indian Balsam (<i>Impatiens glandulifera</i>)
flowering plant	Japanese Knotweed (<i>Fallopia japonica</i>)
flowering plant	<i>Rhododendron ponticum</i>
insect - beetle (Coleoptera)	Harlequin Ladybird (<i>Harmonia axyridis</i>)
terrestrial mammal	Brown Rat (<i>Rattus norvegicus</i>)
terrestrial mammal	Sika Deer (<i>Cervus nippon</i>)

Source NBDC database 28/07/23

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

‘Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, [‘refers only to exotic

species thereof’][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.’

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

No third schedule invasive species or species which are at risk of having damaging effects (Kelly *et al.* 2013), were recorded within the proposed development site. Sycamore, which is listed as a medium impact invasive species by the NBDC was recorded. However, this species is widely naturalised and no damaging effects from this species have been identified within the terrestrial habitats present at the proposed development site.

8. Potential Impacts

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

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

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

Potential impacts were identified as follows:

- Potential impacts from loss of habitat
- Potential impacts from noise and disturbance
- Potential impacts from surface water runoff
- Potential impacts from wastewater discharges
- Potential impacts from the spread of invasive species
- In-combination impacts

8.1 Potential impacts from loss of habitat

The proposed development site is located 1.2km from Clonakilty Bay SAC and Clonakilty Bay SPA at its closest point. An ecological appraisal of the site indicates that it supports common habitats which are not of high value in the context of European designations. The habitats recorded within the proposed development site do not correspond to habitats listed on Annex I of the Habitats Directive.

The proposed development site is located within an urban setting with no wetland habitats which could provide foraging or roosting habitat for wading birds within or in immediate proximity to the proposed site boundary. The grassland habitats onsite are overgrown and surrounded by buildings/vegetation making them largely unsuitable for foraging or roosting SCI birds. The proposed development will not result in any significant loss of *ex situ* foraging or roosting habitat for SCI birds of Clonakilty Bay SPA or Courtmacsherry Bay SPA.

Considering the above, there will be no significant impact on European sites from loss of habitat due to the proposed development.

8.2 Potential impacts from noise and disturbance

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

The wintering birds listed as qualifying interests for the Clonakilty Bay SPA and Courtmacsherry Bay SPA are strongly associated with estuarine shoreline areas or wetlands - habitat types absent from the proposed development area. It is noted that the proposed development area is located 1.2km from the closest SPA boundary and is located adjacent to existing urban road networks and residential developments. This area is subject to noise disturbance and light pollution from surrounding developments. During the construction stage, there may be short-term increases in disturbance, but it will not be significant in the context of existing noise levels. During operation noise levels will be comparable to existing noise levels within the vicinity.

No valuable habitat for SCI species was recorded within or adjacent to the proposed development area. The construction phase of the project will increase noise and disturbance. However, given the existing noise environment and the lack of valuable habitat for SCI species on or near the proposed development site, no impact on birds listed as qualifying interests for the Clonakilty Bay SPA and Courtmacsherry Bay SPA is predicted to occur.

Given the existing noise environment, the absence of valuable habitat for SCI species within/near the proposed development site and distance from valuable foraging/roosting areas, no impact on SCI birds Clonakilty Bay SPA and Courtmacsherry Bay SPA from noise and disturbance is predicted to occur.

8.3 Potential impacts from surface water runoff

During construction works runoff from stockpiling of topsoil (and subsoil) as well as hydrocarbon leaks from mobile plant and spillage of cementitious materials could impact on local water quality. During operation there is the potential for accidental spills on hydrocarbons from residential parking areas.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines. Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on European sites.

As noted above the closest watercourse to the proposed development is the River Fealge, located approximately 160m south of the proposed development site. This is separated from the proposed development by grass areas, mature treelines, existing housing developments and the Dunnes Stores shopping centre. Surface water runoff during construction works would largely be captured by the gullies and drains associated with the existing surface water drainage network, along the local road and associated with the Beechgrove Housing Estate. The potential for significant hydrocarbon spills during construction is very low in the context of scale of the development and modern construction methodologies. Any minor silt laden runoff not captured by the existing surface water infrastructure would largely be absorbed by grassland, treelines etc prior to reaching the River Fealge. In a worst-case scenario, where small amounts for construction runoff were to reach the River Fealge, given the dilution available within the River Fealge and Clonakilty Bay, and the robust nature of estuarine habitats to siltation, no significant impacts on qualifying habitats or SCI birds is predicted to occur.

The existing surface water network associated with the Beechgrove Housing Estate will be sufficient to accommodate surface water runoff from the proposed development. A new network of pipes and attenuation tank will collect surface water runoff from the proposed development prior to discharging to the existing Beechgrove attenuation tank. This will ultimately discharge to the River Fealge via existing surface water network described in **Section 3.3**. The maximum permitted surface water outflow from the new development is to be restricted to that of the existing Greenfield site by the usage of attenuation storage. There will be no significant change in the existing discharge to the River Fealge during operation and no potential for significant effects on water quality downstream i.e. Clonakilty Bay SPA and Clonakilty Bay SAC.

Given the small scale of the proposed development, the existing surface water drainage network, the distance upstream of the SAC/SPA and the subsequent dilution available in local watercourses and estuarine environment, there is no significant risk silt or hydrocarbon contamination within Clonakilty Bay SPA and Clonakilty Bay SAC. Therefore, no impact on water quality within European sites during construction or operation is predicted to occur.

8.4 Impacts from discharges of wastewater during operation

The proposed housing development could potentially result in an increase in nutrients discharging to Clonakilty Bay via the Clonakilty and Environs Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth, which in turn could impact on feeding success for birds listed as qualifying interests for the Clonakilty Bay SAC and Clonakilty Bay SPA.

The Clonakilty and Environs agglomeration is served by a wastewater treatment plant with a Plant Capacity Population Equivalent (P.E.) of 20,500. The WWTP obtained a discharge

licence (Reg: D0049-01) from the EPA and has assigned emission limit values (ELV's) for a range of parameters to ensure a high degree of protection to the Clonakilty Bay.

Treated effluent from the proposed development will discharge from the Clonakilty and Environs WWTP via the main treated effluent line. The discharge licence assigns ELV's for total phosphorous (Total P), chemical oxygen demand (COD), total suspended solids (TSS), biological oxygen demand (BOD), Ammonia, pH and orthophosphate. The ELVs are set based on the full design capacity (P.E. 20,500) and are aimed at providing a high degree of protection to the receiving water body and to ensure the receiving waterbody is capable of accommodating the proposed discharge without causing or exacerbating a breach in the relevant standards.

The 2021 Annual Environmental Report for Clonakilty and Environs WWTP (D0051-01) was reviewed **Table 9** provides a summary of the current operating conditions for the WWTP from the main effluent discharge obtained from the most recent Environmental Protection Agency Annual Environment Report (2021).

Table 9. Effluent Monitoring AER 2021

	Total P (mg/l)	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total N (mg/l)	pH	Ortho P (mg/l)
WWDL ELV (Schedule A1)	2.00	25	125	35	15	9	2
ELV with Condition 2 Interpretation	2.40	50	250	87.5	18	9	2.4
No. of Samples	12	12	12	12	12	15	12
No. of exceedances	3	2	1	1	3	n/a	n/a
Number of exceedances with Condition 2 Interpretation included	3	1	n/a	n/a	2	n/a	n/a
Overall Compliance	Fail	Fail	Pass	Pass	Fail	Pass	Pass

The AER notes that the final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2021. The noncompliance's with the ELVs were in relation to BOD, Nitrogen, Phosphorous. Investigations identified shock load discharges into the network, which resulted in non compliance of the final effluent discharge.

In relation to ongoing monitoring of water quality, the 2021 AER concluded the following:

- The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.
- The ambient monitoring results do not meet the required EQS at the downstream monitoring location. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

- A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.
- Other causes of deterioration in water quality in the area are: Catchment Pressures/Diffuse Urban
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

A pre-connection enquiry was submitted to Irish Water to assess the feasibility of providing a connection to the site. Subsequently, Irish Water issued a confirmation of feasibility for the development.

It is noted that the proposed occupancy of the housing development is approximately 95 persons. In 2021 the agglomeration PE for Clonakilty and Environs WWTP was 13,194 (AER 2022). The proposed development would increase the current WWTP P.E. from 13,194 to 13,289 which is well within the 20,500 P.E. design capacity. Thus, given the limited scale of the proposed development and the ability of the WWTP to cater for the additional loading, no impact is expected.

The effluent discharge from the proposed housing development to the Clonakilty and Environs WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, the impacts from the proposed development will be negligible given the current operating conditions at the WWTP. Minor increases in nutrient levels potentially discharged by the WWTP will not have a significant impact water quality within the Clonakilty Bay and/or Clonakilty Bay SPA/SAC.

8.5 Spread of Invasive Species

No high-risk invasive species were recorded within the proposed development area. Therefore, there is no risk to Clonakilty Bay SAC or Clonakilty Bay SPA via impacts from the spread of invasive species.

8.6 In-combination Impacts

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. The underlying intention of this in combination provision is to take account of in-combination impacts from existing or proposed plans and projects and these will often only occur over time. Other developments near the proposed development area and their potential in-combination impacts are listed in **Table 10**.

Table 10. Other developments near site and potential in-combination impacts

Plans and Projects		Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
River Management 2022-2027	Basin Plan	<p>The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027.</p> <ul style="list-style-type: none"> • Ensure full compliance with relevant EU legislation • Prevent deterioration 	<p>The implementation and compliance with key environmental policies, issues and objectives of this management plan will result in positive in-combination effects to European sites. The</p>

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
	<ul style="list-style-type: none"> • Meeting the objectives for designated protected areas • Protect high status water • Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and addressing more complex issues which will build knowledge for the third cycle. 	implementation of this plan will have a positive impact for the biodiversity. It will not contribute to in-combination or cumulative impacts with the proposed development.
Inland Fisheries Ireland Corporate Plan 2021-2025	<p>To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and that pristine aquatic habitats are also enjoyed for other recreational uses.</p> <p>To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected.</p> <p>To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met in a sustainable conservation focused manner.</p> <p>EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.</p>	The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive on-combination effects to European sites. The implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and ecosystems. It will not contribute to in-combination or cumulative impacts with the proposed development.
Irish Water Capital Investment Plan 2020-2024	Proposals to upgrade and secure water services and water treatment services countrywide.	Likely net positive impact due to water conservation and more effective treatment of water.
Water Services Strategic Plan (WSSP, 2015)	<p>Irish Water prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and biodiversity requirements through reducing:</p> <ul style="list-style-type: none"> • Habitat loss and disturbance from new / upgraded infrastructure; • Species disturbance; • Changes to water quality or quantity; and • Nutrient enrichment /eutrophication. 	The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
		<p>upgrades and new builds within the Irish Water owned assets.</p> <p>Therefore, no adverse significant in-combination effects are envisaged.</p>
<p>NPWS Conservation Management Plans</p>	<p>Conservation Management Plans have not been fully prepared for the European sites being assessed. However, conservation objectives along with supporting documents for the Clonakilty Bay SAC, Clonakilty Bay SPA and Courtmacsherry Bay SPA</p>	<p>The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest.</p> <p>A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.</p> <p>The resultant effects of conservation objectives are a net positive and there is no potential for in combination effects on European sites.</p>
<p>Other developments in the vicinity</p>	<p>A review of the Cork County Council online planning records identified a number of permitted/proposed developments in the vicinity of the proposed development. Within the past 36 month period there has been one notable development granted planning in the vicinity:</p> <p><i>Ref. 21488. Gaelscoil Mhichíl Uí Choileáin. Permission for the following proposed works: 1) construct a new two-storey extension with link adjoining north-facing elevation of existing main school building to provide 4 no. ensuite classrooms and ancillary accommodation; 2) alterations to existing car parking layout, to include additional car parking spaces and 6 no. new motorcycle parking bays and additional new covered bicycle stand;</i></p>	<p>Works on this development are near completion and would not run concurrently with the proposed development. Small scale development of individual dwellings or alternations to existing dwellings in the vicinity will not cause significant cumulative disturbance effects.</p> <p>As noted above, no adverse effects on European sites from</p>

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	Impact
	<p><i>3) extension of existing hard standing playground areas to the north-west of the site (basketball court) and associated works to existing and proposed fencing; 4) all associated site works and; 5) retention sought for existing hard standing parking area, including boundary wall and access steps as constructed, and permission sought for widening of the existing vehicle entrance serving subject parking area.</i></p>	<p>noise or disturbance have been identified with the project and therefore, no potential in-combination effects have been identified for noise and disturbance.</p> <p>Future developments will only be granted permission where discharges from same meet with relevant water quality standards. Therefore, the long-term in-combination impacts on water quality are predicted to be negligible. Therefore, no significant in-combination impacts on water quality within European sites have been identified.</p> <p>No other significant in-combination impacts have been identified. There are no projects which could have a potential significant in-combination effect along with the proposed development.</p>

The area surrounding the proposed development area is populated with a mixture of residential estates, schools, commercial developments and a busy road network. However, in the absence of any significant impact associated with this project no in-combination impacts on water quality have been identified. Similarly, no significant in-combination impacts in relation to noise and disturbance have been identified. No other significant in-combination impacts have been identified. There are no projects which could have a potential significant in-combination effect along with the proposed development.

9. Screening conclusion and statement

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

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

Through an assessment of the source-pathway-receptor model, which considered the ZoI of effects from the proposed development and the potential in-combination effects with other plans or projects, the following findings are as follows:

The proposed development, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives. Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

References

Environmental Protection Agency Ireland (<http://www.epa.ie/>). Accessed 29/07/23

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

Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods - a Manual of Techniques for Key UK Species*. RSPB: Sandy.

Gilbert, G., Stanbury, A. and Lewis, L. (2021). *Birds of Conservation Concern in Ireland 4: 2020-2026*. *Irish Birds* 43; 1-23

Invasive species Ireland (<http://invasivespeciesireland.com/>). Accessed 29/07/23

National Biodiversity Data Centre (<http://www.biodiversityireland.ie/>). Accessed 29/07/23

National Parks and Wildlife Service website (www.npws.ie). Accessed 29/07/23

Appendices

Appendix 1 Site synopses

Clonakilty Bay SAC Site Code: 000091

Clonakilty Bay in west Cork is an intertidal expanse that stretches from Clonakilty to the open sea, and comprises two small estuaries separated by Inchydoney Island. The site also includes adjacent sand dunes and inland marshes, and therefore is a coastal complex with a good diversity of habitats.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1140] Tidal Mudflats and Sandflats [1210] Annual Vegetation of Drift Lines [2110] Embryonic Shifting Dunes [2120] Marram Dunes (White Dunes) [2130] Fixed Dunes (Grey Dunes)* [2150] Decalcified Dune Heath*

Sand flats dominate the intertidal area, although mudflats occur at the sheltered upper end of the inlets. The vegetation consists of algal mats (*Enteromorpha* spp.), with brown seaweeds (*Fucus* spp.) occurring where the coast is rocky. The invasive Cord-grass (*Spartina* sp.) occurs in places. The intertidal flats have a typical diversity of macro-invertebrates, including *Arenicola marina*, *Scrobicularia plana*, *Hediste diversicolor*, *Nephtys hombergii*, *N. cirrosa*, *Hydrobia ulvae* and *Cerastoderma edule*.

Sand dunes grade from a strandline, colonised by Frosted Orache (*Atriplex laciniata*), Sea Sandwort (*Honkenya peploides*) and Sea Rocket (*Cakile maritima*), through to fixed dunes vegetated by grasses, small herbs and several species of orchid. They support an interesting array of plants, amongst which Great Mullein (*Verbascum thapsus*), Viper's-bugloss (*Echium vulgare*) and Teasel (*Dipsacus fullonum*) are some of the most noticeable. Embryonic shifting dunes and white Marram (*Ammophila arenaria*) dunes are also represented. Of particular interest is a small area of decalcified dune heath with some Gorse (*Ulex europaeus*).

Inland of the western estuary, an extensive area of wetland occurs, which in itself contains a fine range of habitats from saline lagoons, to brackish grasslands, open freshwater marsh and Alder (*Alnus glutinosa*) scrub. Species found here are characteristic of marshy areas and include Creeping Bent (*Agrostis stolonifera*), Water Horsetail (*Equisetum fluviatile*), Marsh Cinquefoil (*Potentilla palustris*) and Marsh Willowherb (*Epilobium palustre*). The saline influence is evident by the occurrence of species such as Saltmarsh Rush (*Juncus gerardi*) and Sea Rush (*J. maritimus*).

The site contains a good diversity and density of waterfowl, with over 7,000 waders and wildfowl occurring regularly. Seven species have populations of national importance: Shelduck (168), Grey Plover (76), Lapwing (2,509), Dunlin (1,508) Curlew (1,231), Redshank (263) and Greenshank (27). The site is most noted, however, for its population of Black-tailed Godwit (866), which is of international importance and comprises over 10% of the national total. Amongst the other species which occur, there are notable populations of Golden Plover and Bar-tailed Godwit, both of which are listed on Annex I of the E.U. Birds Directive. All counts given are average winter peaks over either two or three seasons from 1994/95 to 1996/97. Herons commonly use the site and a heronry exists in the trees near Clonakilty.

Otter spraints were found frequently during a recent survey of the marsh area. This species is listed on Annex II of the E.U. Habitats Directive.

The site is under pressure from a number of sources, notably recreation and tourism developments and agricultural improvements, including drainage and fertiliser application.

This site is of considerable scientific interest because it contains a good diversity of coastal habitats. These habitats show a succession from salt to freshwater influences and include six which are listed on Annex I of the E.U. Habitats Directive. Its value is enhanced considerably by the birdlife it supports. The occurrence of Black-tailed Godwit in internationally important numbers is particularly significant. The site also supports nationally

important numbers of seven other species of waterfowl as well as two species listed on Annex I of the E.U. Birds Directive.

Courtmacsherry Bay SPA (Site code 004219)

Courtmacsherry Bay SPA is located approximately 12 km south of Bandon and immediately east of the village of Timoleague in west Co. Cork. The site, which is largely estuarine in nature, consists of the drowned valley of the Argideen River which is now filled with sediments, resulting in extensive mudflats and areas of saltmarsh. The estuary of the Kilbrittain River in the north-east of the site holds an area of well-developed saltmarsh. The seaward boundary for the site stretches from Coolmain Point to Barry Point, and includes Coolmain Bay and Broadstrand Bay.

Most of the mudflats are unvegetated, although in places Cord-grass (*Spartina anglica*) occurs. Saltmarsh has developed in a number of areas, the abundant species mostly being Sea Club-rush (*Scirpus maritimus*), Common Scurvygrass (*Cochlearia officinalis*), Sea Arrowgrass (*Triglochin maritima*), Sea Plantain (*Plantago maritima*), Thrift (*Armeria maritima*) and Saltmarsh Rush (*Juncus gerardi*).

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Northern Diver, Shelduck, Wigeon, Red-breasted Merganser, Golden Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Black-headed Gull and Common Gull. 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.

The site is of ornithological importance for the wintering waders and wildfowl that feed on the mudflats. It supports internationally important numbers of Black-tailed Godwit (506 - figures given here and below are mean peaks for the five winters in the period 1995/96 to 1999/00), as well as nationally important numbers of a further eleven species, i.e. Great Northern Diver (27), Shelduck (175), Wigeon (934), Redbreasted Merganser (63), Golden Plover (5,759), Lapwing (2,713), Dunlin (1,353), Bar-tailed Godwit (182), Curlew (1,357), Black-headed Gull (2,727) and Common Gull (2,226). Other species which occur include Oystercatcher (610), Redshank (227) and Greenshank (26).

Courtmacsherry Bay SPA is an important site for wintering birds. It holds internationally important numbers of Black-tailed Godwit and nationally important numbers of a further eleven species, including three that are listed on Annex I of the E.U. Birds Directive, i.e. Great Northern Diver, Golden Plover and Bar-tailed Godwit.

Clonakilty Bay SPA (site code 004081)

Clonakilty Bay, which is located in west County Cork, is a wetland complex that stretches from the town of Clonakilty to the open sea. It comprises two small estuarine bays, Clonakilty Harbour and Muckcross Strand, separated by Inchydoney Island and its empoldered isthmus. Several small rivers flow into the site, notably the Fealge River. At low tide, substantial areas of sand and mud flats are exposed. The construction of a causeway across the inner part of Muckcross Strand created an extensive wetland complex known as Cloheen Strand Intake.

Intertidal sand and mud flats occupy the majority of the site area and these provide the main food resource for the wintering waterfowl. Sand flats dominate the intertidal area, although mud flats occur at the sheltered upper end of the inlets. The vegetation consists of algal mats (*Ulva* spp.), with brown seaweeds (*Fucus* spp.) occurring where the shore is rocky. The invasive Common Cord-grass (*Spartina anglica*) occurs in places. The intertidal flats have a typical diversity of macroinvertebrates, including Lugworm (*Arenicola marina*), Peppery Furrow-shell (*Scrobicularia plana*), Ragworm (*Hediste diversicolor*), the marine bristle worms *Nephtys hombergii* and *N. cirrosa*, Laver Spire-shell (*Hydrobia ulvae*) and Common Cockle (*Cerastoderma edule*).

The Cloheen Strand Intake wetland contains a fine range of habitats from saline lagoons, to brackish grasslands, open freshwater marsh and wet grassland. This area provides the main roosting area for birds at high tide. Birds also roost elsewhere above the shoreline and on the sandy beach associated with the dune system at Inchydoney Island.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shelduck, Dunlin, Black-tailed Godwit and Curlew. 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.

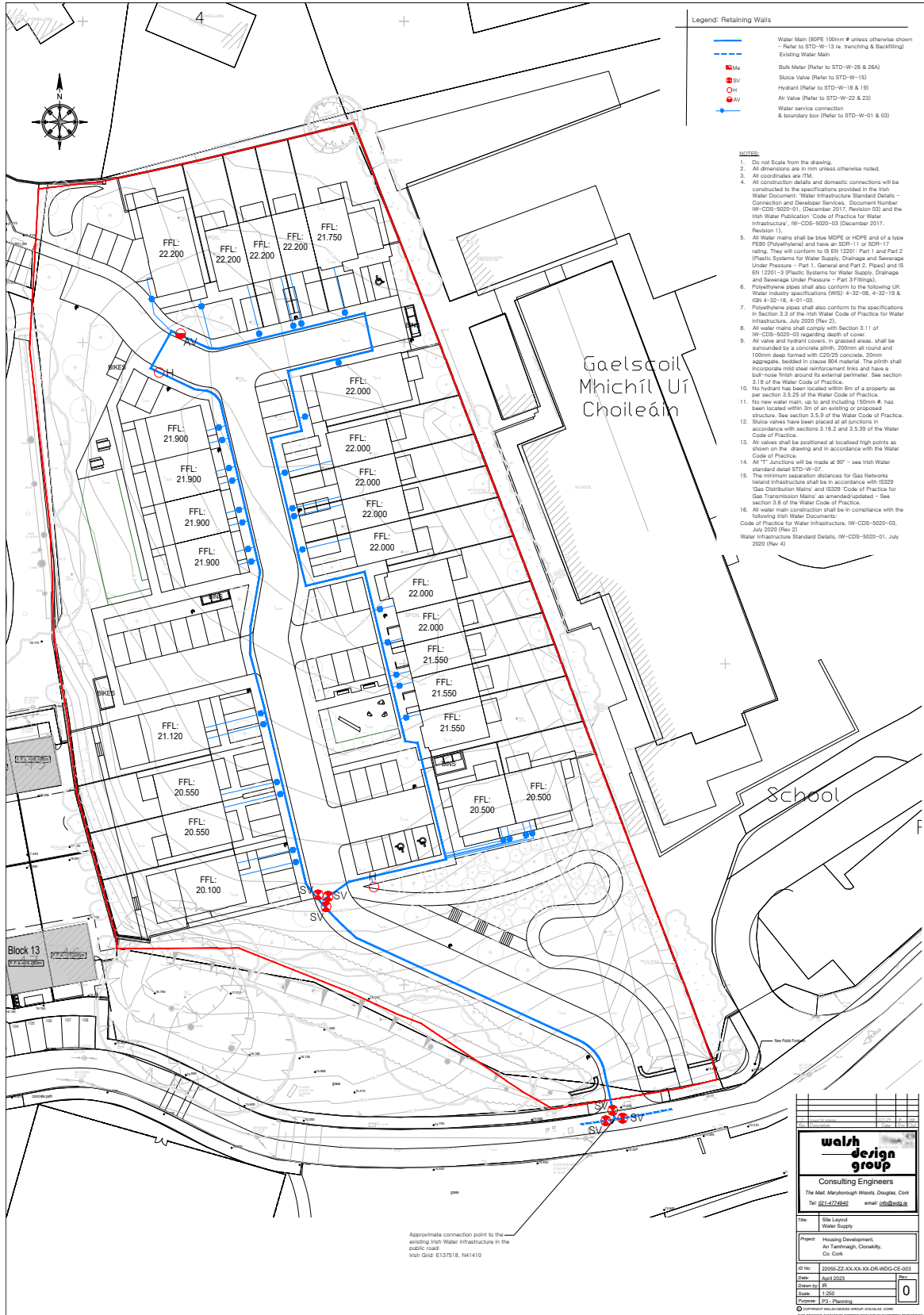
The site contains a good diversity of wintering waterbirds, with over 8,000 birds occurring regularly. The site is noted for its internationally important population of Black-tailed Godwit (874) - all count data refers to the 4-year mean peak 1995/96 to 1998/99. The ecology of this population has been studied in detail in recent years. Three species occur in nationally important numbers: Shelduck (156), Dunlin (1,172), and Curlew (599). Other species that occur at the site include Mute Swan (53), Wigeon (487), Teal (216), Mallard (93), Red-breasted Merganser (10), Cormorant (13), Oystercatcher (316), Ringed Plover (103), Golden Plover (857), Grey Plover (61), Lapwing (1,658), Knot (168), Bar-tailed Godwit (79) Redshank (252), Greenshank (33) and Turnstone (38).

Little Egret, a species that has recently colonised Ireland, has been recorded in small numbers (4 year mean peak of 5, maximum 7). Grey Heron (14) commonly uses the site and a heronry is located in the trees near Clonakilty. Cloheen Strand Inlet is also a regular wintering site for usually up to 3, but occasionally 7, Short-eared Owl.

The site is a regular staging post for scarce autumn migrants, especially Little Stint, Curlew Sandpiper and Spotted Redshank. In most years it is also visited by vagrant waders from North America.

Clonakilty Bay SPA is of high ornithological importance, particularly for its internationally important population of Black-tailed Godwit. In addition, there are three species with populations of national importance. The presence of the E.U. Birds Directive Annex I species, Golden Plover, Bar-tailed Godwit, Little Egret and Shorteared Owl, is of note.

Appendix 2. Drawings



DixonBrosnan
environmental consultants

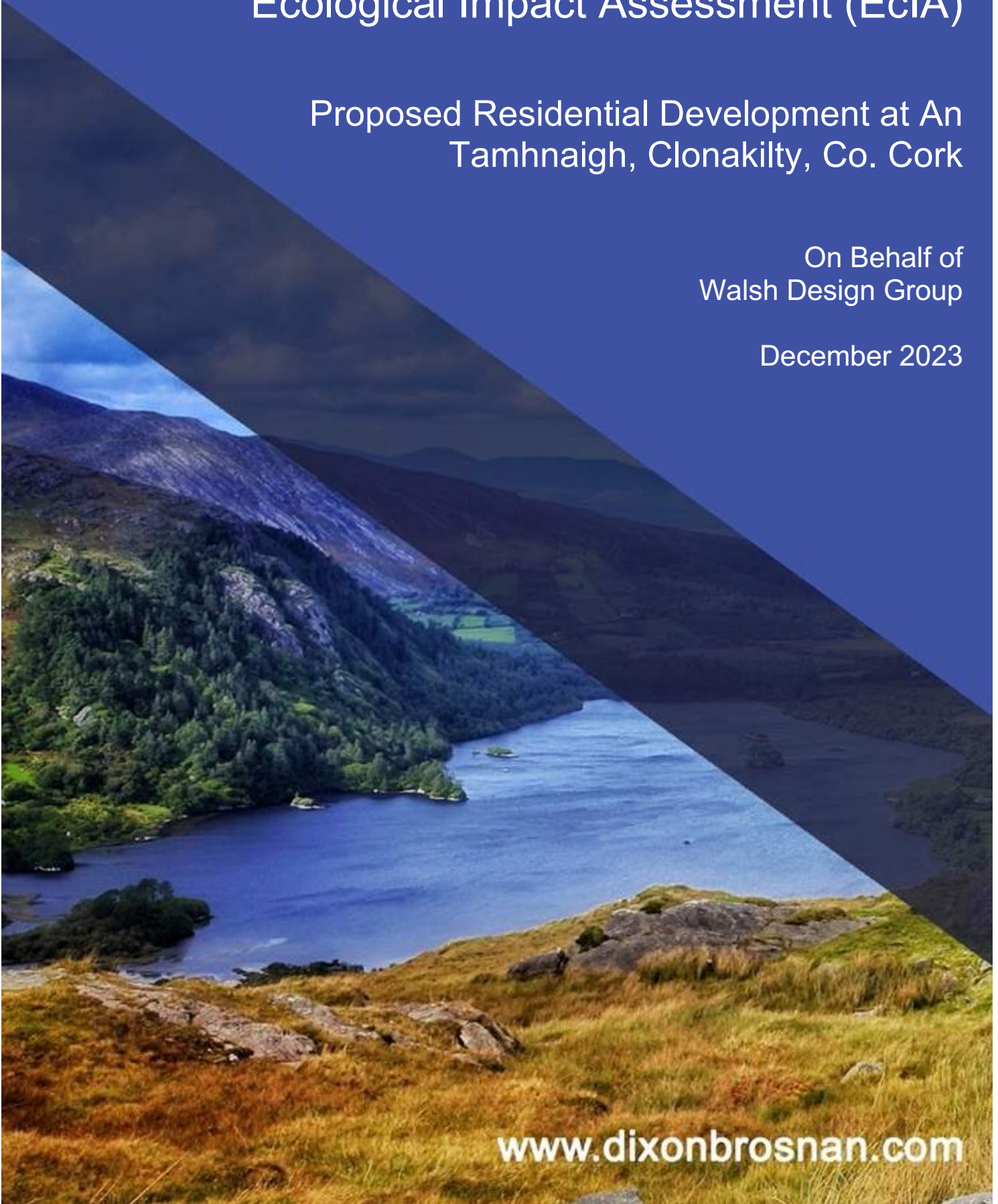
Ecological Impact Assessment (EcIA)

Proposed Residential Development at An
Tamhnaigh, Clonakilty, Co. Cork

On Behalf of
Walsh Design Group

December 2023

www.dixonbrosnan.com



DixonBrosnan

environmental consultants

Project	Ecological Impact Assessment (EclA) Proposed Residential Development at An Tamhnaigh, Clonakilty, Co. Cork	
Client	Walsh Design Group	
Project Ref.	23078	
Report No.	23078.01	
Client Ref.	-	
Date	Revision	Prepared By
02/08/23	1 st Draft	Sorcha Sheehy BSc PhD
27/10/23	2 nd Draft	Carl Dixon BSc MSc
05/12/23	Issue to client	
DixonBrosnan Lios Ri Na hAoine, 1 Redemption Road, Cork. Tel 086 851 1437 carl@dixonbrosnan.com www.dixonbrosnan.com		
<small>This report and its contents are copyright of DixonBrosnan. It may not be reproduced without permission. The report is to be used only for its intended purpose. The report is confidential to the client, and is personal and non-assignable. No liability is admitted to third parties. ©DixonBrosnan 2023.</small>		

Table of Contents

1. Introduction	4
2. Methodology	4
2.1 Introduction	4
2.2 Relevant Guidance	4
2.3 Desktop Study	5
2.4 Relevant Legislation	6
2.5 Survey Overview	7
3. Receiving Environment.....	9
3.1 Existing site	9
3.2. Proposed Development.....	10
3.3 Surface Water	11
3.4 Wastewater	11
4. Designated Conservation Areas.....	12
4.1 European (Natura 2000) Sites.....	12
4.2 Nationally Protected Sites	7
4.3 Important Bird Areas – Clonakilty Bay	13
5. Flora	14
5.1 Habitats	14
5.1.1 Historical mapping/Aerial Photography	14
5.2.2 Site Surveys	16
5.2 Rare Flora	21
5.3 Invasive Species	21
6. Fauna.....	22
6.1 Bats.....	22
6.1.1 Bats background.....	22
6.1.2 Bats at Proposed Development Site.....	25
6.2 Otter	26
6.3 Other terrestrial mammals.....	27
6.3.1 Badger	27
6.3.2 Sika Deer	28
6.3.3 Pygmy Shrew	28
6.3.4 Hedgehog	28
6.3.5 Irish hare	28
6.3.6 Irish Stoat	28
6.3.7 Pine Marten.....	28
6.4 Reptiles and Amphibians.....	29
6.5 Birds	29
6.6 Other species	30

7. Water Quality	30
7.1 River Basin Management Plan for Ireland 2022-2027 (3 rd Cycle)	30
7.2 Urban Wastewater Treatment Directive.....	32
8. Evaluation of Potential Impacts.....	33
8.1 Do Nothing' Impact	33
8.2 Impact Appraisal	33
9. Potential Impacts	34
9.1 Potential Impacts on Designated Sites.....	34
9.2 Potential Impacts on Flora/Habitats.....	35
9.3 Potential Impacts on Fauna	35
9.3.1 Bats.....	35
9.3.2 Otter	36
9.3.3 Other Mammals	37
9.3.4 Birds	37
9.3.5 Other species.....	38
10. Potential impact on water quality	38
10.1 Surface Water Runoff.....	38
10.2 Wastewater Discharges.....	39
11. Mitigation Measures	41
11.1 Water Protection Measures	41
11.1.1 Suspended Solids.....	42
11.1.2 Control of Cement Runoff	44
11.1.3 Monitoring	45
11.2 Noise.....	45
11.3 Lighting	46
11.3.1 Lighting During Construction.....	46
11.3.2 Lighting During Operation	46
11.4 Ecology	47
11.4 Biodiversity Enhancement.....	49
12. Cumulative Impacts.....	49
13. Conclusions	50
References	51
Appendices	53

1. Introduction

DixonBrosnan Environmental Consultants were commissioned to assess the potential impacts of the proposed residential development at An Tamhnaigh, Clonakilty, Cork, and all associated site works on terrestrial and aquatic flora and fauna. This report describes and evaluates the habitats within the proposed development site along with their representative flora and fauna and addresses the potential impacts of the development on the ecology of the site and the surrounding area.

2. Methodology

2.1 Introduction

This appraisal is based on surveys of the proposed works area and a review of desktop data. Although not part of an Environmental Impact Assessment Report (EIAR) this report follows the structure and protocols detailed in *Advice notes for preparing Environmental Impact Statements* (EPA Draft, 2015) and *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022).

2.2 Relevant Guidance

This report follows the Environmental Protection Agency's *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA 2022). It also takes account of the *Draft Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Environment, Community and Local Government, August 2018), *Guidelines on Ecological Impact Assessment in the UK and Ireland, 2nd edition* (Chartered Institute of Ecology and Environmental Management CIEEM 2016) and *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.1* (CIEEM, 2018).

Reference was also made to the following documents where relevant:

- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report* (Directive 2011/92/EU as amended by 2014/52/EU) (European Union (EU), 2017);
- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (EC Environment Directorate-General, 2018);
- *Guidance on integrating climate changes and biodiversity into environmental impact assessment (EU Commission 2013)*;
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance* (EC 2021);
- *Biodiversity Net Gain Good practice principles for development* (CIEEM 2019)
- *Biodiversity Net Gain. A practical guide.* (CIEEM 2016);
- *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* Inland Fisheries Ireland (2016);

- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021);
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority (NRA) 2009);
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011);
- *A Guide to Habitats in Ireland* (Fossitt, 2000);
- *Guidelines for the treatment of Badgers prior to the construction of National Road Schemes. National Roads Authority, Dublin* (National Roads Authority (NRA) 2005a);
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (National Roads Authority (NRA) 2005b).
- *Guidelines for the treatment of bats during the construction of national road schemes* (National Roads Authority (NRA) 2005c);
- *Guidelines for the protection and preservation of trees, hedgerows and scrub prior to, during and post construction of national road schemes.* (National Roads Authority (NRA) 2006).
- *Guidelines for the treatment of Otters prior to the construction of National Road Schemes* (National Roads Authority (NRA) 2008);
- *Bird Census Techniques* (Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. 2000)
- *Bird Monitoring Methods - a Manual of Techniques for Key UK Species.* (Gilbert, G., Gibbons, D.W. & Evans, J. (1998))
- *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed)* (Collins, 2016)
- *Bat Mitigation Guidelines for Ireland Volume 2.* (F. Marnell, C. Kelleher and E. Mullen NPWS (2022))
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009)
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report* (Directive 2011/92/EU as amended by 2014/52/EU) European Union, 2017.

2.3 Desktop Study

A desktop study was carried out to collate the available information on the local ecological environment. The purpose of the desktop study was to identify features of ecological value occurring within the proposed development site and those occurring near to it which have the potential to be affected by the proposed development. A desktop review also allows the key

ecological issues to be identified early in the assessment process and facilitates the planning of surveys. Sources of information utilised for this report include the following:

- National Parks and Wildlife Service (NPWS) - www.npws.ie
- Environmental Protection Agency (EPA) – www.epa.ie
- National Biodiversity Data Centre (NBDC) – www.biodiversityireland.ie
- Bat Conservation Ireland - www.batconservationireland.org
- Birdwatch Ireland - www.birdwatchireland.ie
- EPA Catchments www.catchments.ie
- National Biodiversity Action Plan 2017-2021 (NPWS 2017)
- Invasive species Ireland invasivespeciesireland.com
- Cork County Development Plan 2022-2028 (Cork County Council 2022)
- Cork Biodiversity Action Plan 2009-2014.

2.4 Relevant Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Act 1976, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011. They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (2009/147/EC).

Under this legislation, sites of nature conservation importance are then designated in order to legally protect faunal and floral species and important/vulnerable habitats.

The relevant categories of designation are as follows:

- Special Areas of Conservation (SAC) are designated under the European Communities (Birds and Natural Habitats) Regulations 2011 to meet the EU Habitats Directive (92/43/EEC);
- Special Protection Areas (SPAs) are designated under the EU Birds Directive (79/409/EEC) amended in 2009 as the Directive 2009/147/EC; and
- Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHA) are listed under the Wildlife (Amendment) Act 2000. A NHA is designated for its wildlife value and receives statutory protection. A list of proposed NHAs (pNHAs) was published on a non-statutory basis in 1995, but these have not since been statutorily proposed or designated.

Relevant European Legislation

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive);

- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (The Birds Directive);
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (The Water Framework Directive);
- Directive 2006/44/EC of the European Parliament and of the Council of 6 September 2006 on the quality of fresh waters needing protection or improvement in order to support fish life (The Fish Directive (consolidated)).

Relevant Irish Legislation

- The Wildlife Act 1976, as amended by the Wildlife Act 1976 (Protection of Wild Animals) Regulations, 1980, the Wildlife (Amendment) Act 2000, the Wildlife (Amendment) Act 2010, Wildlife (Amendment) Act 2012, European Communities (Wildlife Act, 1976) (Amendment) Regulations 2017. (The Wildlife Act);
- European Communities (Conservation of Wild Birds) Regulations 1985 (S.I. 291/1985) as amended by S.I. 31/1995;
- European Communities (Natural Habitats) Regulations, S.I. 94/1997 as amended by S.I. 233/1998 & S.I. 378/2005 (The Habitats Regulations);
- Fisheries (Consolidation) Act, 1959 (as amended), hereafter referred to as the Fisheries Act;
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011);
- Flora (Protection) Order, 2022 (S.I. No. 235/2022).
- In addition to the above, in assessing the likely significant effects on the prevailing biodiversity arising from the proposed works (including decommissioning works), due regard, where relevant, has been given to relevant legislation and guidance, including the following:
 - EIA Directive (2014/52/EU)
 - Planning and Development Acts 2000, as amended and the Planning and Development Regulations 2001, as amended
 - EU Water Framework Directive 2000/60/EC

2.5 Survey Overview

Site surveys were carried out on the 20th September 2022 and 6th April 2023. The following surveys were carried out as part of this assessment.

- Habitats were mapped according to the classification scheme outlined in the Heritage Council publication '*A Guide to Habitats in Ireland (Fossitt, 2000)*' and following the guidelines contained in '*Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011)*';

- A general mammal survey was carried out in conjunction with the habitat survey following NRA guidelines (NRA 2005b, NRA 2005c, NRA 2008) and
- A night time emergence/activity survey was carried out on the 20th September 2022 using an Echotouch Touch 2 PRO bat detector and Batbox Duet. A daytime assessment of tree suitability for roosting bats and Potential Roost Features (PRFs) was carried out on 6th April 2023. This survey followed the guidelines set out in Collins (2016).
- The proposed development area was surveyed for invasive species and
- All bird species recorded during the walkover survey and habitat survey were recorded.

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

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

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

3. Receiving Environment

3.1 Existing site

The proposed development site is located to the west of Clonakilty town centre just off the Fernhill Road (R588) (**Figure 1**). The site is accessed by a local road to south which also provides access to the Beechgrove Housing Estate and Gaelscoil Mhichíl Uí Choileáin. The site is bounded to the west by the Beechgrove Housing Estate, to the east by Gaelscoil Mhichíl Uí Choileáin, to the north by existing private dwellings and to the south by the local road. Within the wider landscape, lands to the south are dominated by the urban infrastructure of Clonakilty town, while lands to the north are largely agricultural.

The proposed development site which is approximately 0.99ha is a greenfield site, currently used as agricultural land. The site generally slopes downwards from the north to the south. The high point of approximately 24.10m is at the top of a low mound in the north of the site and the low point of approximately 14.30m is at the southern boundary, along the edge of the local road.

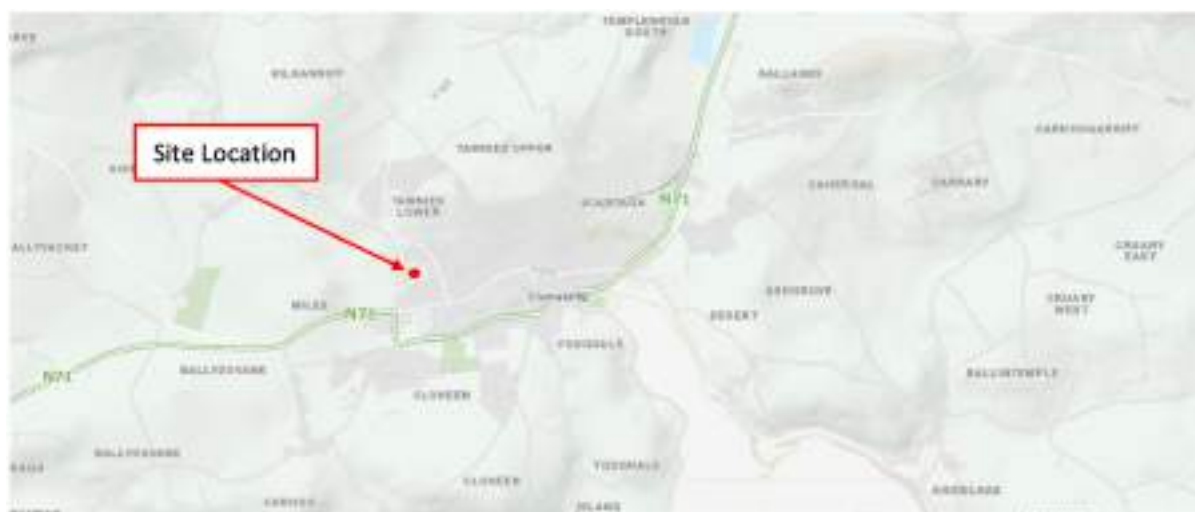


Figure 1. Location of proposed development site | Source OSI

- 4 one-bed first floor apartments, and
- Six one-bed ground floor apartments

43 car parking spaces, including 3 designated for reduced mobility access,

A range of units include universal design;

All other associated ancillary development and works including footpaths, communal bin stores, bike storage, drainage, landscaping and amenity areas

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

3.3 Surface Water

The proposed storm sewer collection system consists of a 100 mm diameter pipe collection network around each house in accordance with TGD part H discharging to 225mm diameter uPVC sewer or larger under the development's streets. The surface water network layout is shown in drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-002 and the typical details for the surface water infrastructure are shown on drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-500.

The surface water sewers have been designed using the Causeway Flow design software and the Wallingford procedure for the design and analysis of urban drainage. The surface water system for the development is a single network falling generally from north to south, exiting the development at the proposed entrance and discharging to the Beechgrove network at an existing manhole in the public roadway just west of the entrance.

The Beechgrove network falls generally from north to south and runoff from the development is attenuated in an underground tank in the green area to the south before the network continues southwards through the Woodlands Development. The discharge rate from the proposed development will be 3.4 litres/sec. As the proposed network will tie into the Beechgrove infrastructure, an extra 3.4 litres/sec will flow through the existing attenuation tank and so it will be necessary to upgrade the flow control at the tank's outlet to allow the increased flow and prevent overtopping in the network.

3.4 Wastewater

The layout of the proposed wastewater drainage network for the development is shown on WDG drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-002 and the typical details for the wastewater infrastructure are shown on drawing no. 22055-ZZ-XX-XX-XX-DR-WDG-CE-501. 2 separate conventional piped, gravity sewer networks are proposed.

The southern network falls towards the centre of the development and then connects to the Beechgrove wastewater infrastructure, to the west, at the existing manhole labelled F13. The northern network falls to the north and west from the centre of the development and connects to the existing manhole labelled S7 in the north-eastern corner of the Beechgrove Development.

All sewers within the curtilage of individual houses have been designed and are to be installed in accordance with TGD Part H (2010) and will consist of 100 mm diameter uPVC Sewers from individual houses laid to falls of min 1:60 to connect to a 150mm and 225mm uPVC sewer

to be laid under the estate street. Inspection chambers will be constructed within 1m of the boundary of each private property in accordance with Irish Water Standard Details.

All wastewater sewers in the public realm have been designed in compliance with Irish Water's Code of Practice for Wastewater Infrastructure – A Design and Construction Guide for Developers (Revision 2) July 2020. All construction details within the public realm will be in accordance with Irish Water, Wastewater Infrastructure Standard Details (Revision 4), July 2020.

A pre-connection enquiry was submitted to Irish Water to assess the feasibility of providing a connection to the site. Subsequently, Irish Water issued a confirmation of feasibility for the development.

4. Designated Conservation Areas

Special Areas of Conservation (SACs) and candidate SACs are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 sites or European sites. Natural Heritage Areas and proposed Natural Heritage Areas (NHAs/pNHAs) are national designations under the Wildlife Act 1976, as amended. A NHA/pNHA is designated for its wildlife value and receives statutory protection. A list of pNHAs was published on a non-statutory basis in 1995, but these have not since been statutorily proposed or designated. Consultation with the NPWS is still required if any development is likely to impact on a pNHA.

The proposed development area does not form part of any Natural Heritage Area (NHA), Special Protection Area (SPA), Special Area of Conservation, Nature Reserve, or National Park.

4.1 European (Natura 2000) Sites

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

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 sites that can be potentially affected by the proposed project has been compiled. All SAC, cSAC and SPAs sites which could potentially be impacted by the proposed development have been identified. The likely Zone of Impact (ZoI) comprises the area within which the proposed development may potentially affect the conservation objectives or qualifying interests (QI) of a Natura 2000 site. There is no recommended likely Zone of Impact, and guidance from the National Parks and Wildlife Service (NPWS) and CIEEM (2018) 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). The proposed development does not overlap with any European site. European sites (Natura 2000 sites) within the likely zone of

impact of the proposed development site, along with their distance from the proposed development site, are listed in **Table 1** and their location shown in **Figure 3**.

The River Fealge (aka Clonakilty (Stream) EPA waterbody Code IE_SW_20C050300) is located approximately 160m south of the proposed development site (See **Figure 4**). This stream runs east before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. It is noted that, although mapped by the EPA mapping service, the Templebryan North Stream was culverted upstream of Clonakilty town early during the 20th Century. Therefore, the closest watercourse to the proposed development is the River Fealge. Contaminated surface water runoff could potentially impact on water quality within these downstream receptors and spread invasive species. During operation, wastewater from the proposed development will discharge to Clonakilty Bay via Clonakilty and Environs wastewater treatment plant (WWTP). Habitats within the proposed development site could potentially provide *ex situ* habitats for SCI species of Clonakilty Bay SPA and Courtmacsherry Bay SPA. The proposed development could therefore lead to the loss of *ex situ* foraging habitats for SCI birds.

Therefore, a potential source-pathway-receptor link has been identified between the source (the proposed development) and the receptors (Clonakilty Bay SAC, Clonakilty Bay SPA and Courtmacsherry Bay SPA) via a potential pathway (runoff/discharge of surface water during construction/operation, wastewater discharges during operation, loss/disturbance of *ex situ* foraging habitats, spread of invasive species) (See **Table 1** for details). Further information on these European sites is provided below.

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

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
Special Area of Conservation (SAC)				
Clonakilty Bay SAC	000091	<p>Habitats</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p>2150 Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)*</p>		<p>1.2km southeast (1.3km downstream). The River Fealge is located approximately 160m south of the proposed development site. This stream runs east before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. Therefore, during construction and operation, contaminated surface water runoff could potentially impact on water quality within the River Fealge and Clonakilty Bay SAC. Construction works could also spread invasive species outside the proposed development site and impact on the SAC downstream.</p> <p>During operation, wastewater from the proposed development will discharge to the Clonakilty Bay Via Clonakilty Wastewater treatment plant (WWTP).</p> <p>Given the location of the proposed development relative to the European site boundary and the identified downstream hydrological connectivity, a potential source pathway connector link has been identified.</p>
Kilkeran Lake and Castlefreke Dunes SAC	001061	<p>Habitats</p> <p>1150 Coastal lagoons*</p> <p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p>		6.8km southwest. No hydrological or other pathway.

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
Courtmacsherry Estuary SAC	001230	Habitats 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1220 Perennial vegetation of stony banks 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glaucopuccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*		9.3km southeast. No hydrological or other pathway
Special Protection Area (SPA)				
Clonakilty Bay SPA	004081	Birds A149 Dunlin (Calidris alpina) A156 Black-tailed Godwit (Limosa limosa)		1.2km southeast (1.3km downstream). The River Fealge is located approximately 160m south of the proposed development site. This stream runs east-southeast before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed

European 2000 site	Site Code	Qualifying Interests/Special Interests	Conservation	Distance at closest point and potential source-pathway-receptor link
		A048 Shelduck (<i>Tadorna tadorna</i>) A160 Curlew (<i>Numenius arquata</i>) Habitats Wetlands		development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure. Therefore, during construction and operation, contaminated surface water runoff could potentially impact on water quality within the River Fealge and Clonakilty Bay SPA. Construction works could also spread invasive species outside the proposed development site and impact on the SPA downstream. During operation, wastewater from the proposed development will discharge to the Clonakilty Bay Via Clonakilty Wastewater treatment plant (WWTP). Habitats within the proposed development site could potentially provide <i>ex situ</i> habitats for SCI species. Given the location of the proposed development relative to the European site boundary as well as the potential for <i>ex situ</i> SCI species to occur within proposed development, a potential source pathway connector link has been identified.
Galley Head to Duneen Point SPA	004190	Birds A346 Chough (<i>Pyrrhocorax pyrrhocorax</i>)		5.1km southwest. No hydrological or other pathway
Seven Heads SPA	004191	Birds A346 Chough (<i>Pyrrhocorax pyrrhocorax</i>)		8.6km southeast. No hydrological or other pathway
Courtmacsherry Bay SPA	004219	Birds A149 Dunlin (<i>Calidris alpina</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A160 Curlew (<i>Numenius arquata</i>) A069 Red-breasted Merganser (<i>Mergus serrator</i>) A003 Great Northern Diver (<i>Gavia immer</i>)		9.3km southeast. Although unlikely given the distances involved, habitats within the proposed development site could potentially provide <i>ex situ</i> habitats for SCI species. Therefore, a potential source pathway connector link has been identified.

European 2000 site	Site Code	Qualifying Interests/Special Conservation Interests	Distance at closest point and potential source-pathway-receptor link
		A156 Black-tailed Godwit (<i>Limosa limosa</i>) A050 Wigeon (<i>Anas penelope</i>) A182 Common Gull (<i>Larus canus</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A142 Lapwing (<i>Vanellus vanellus</i>) Habitats Wetlands	

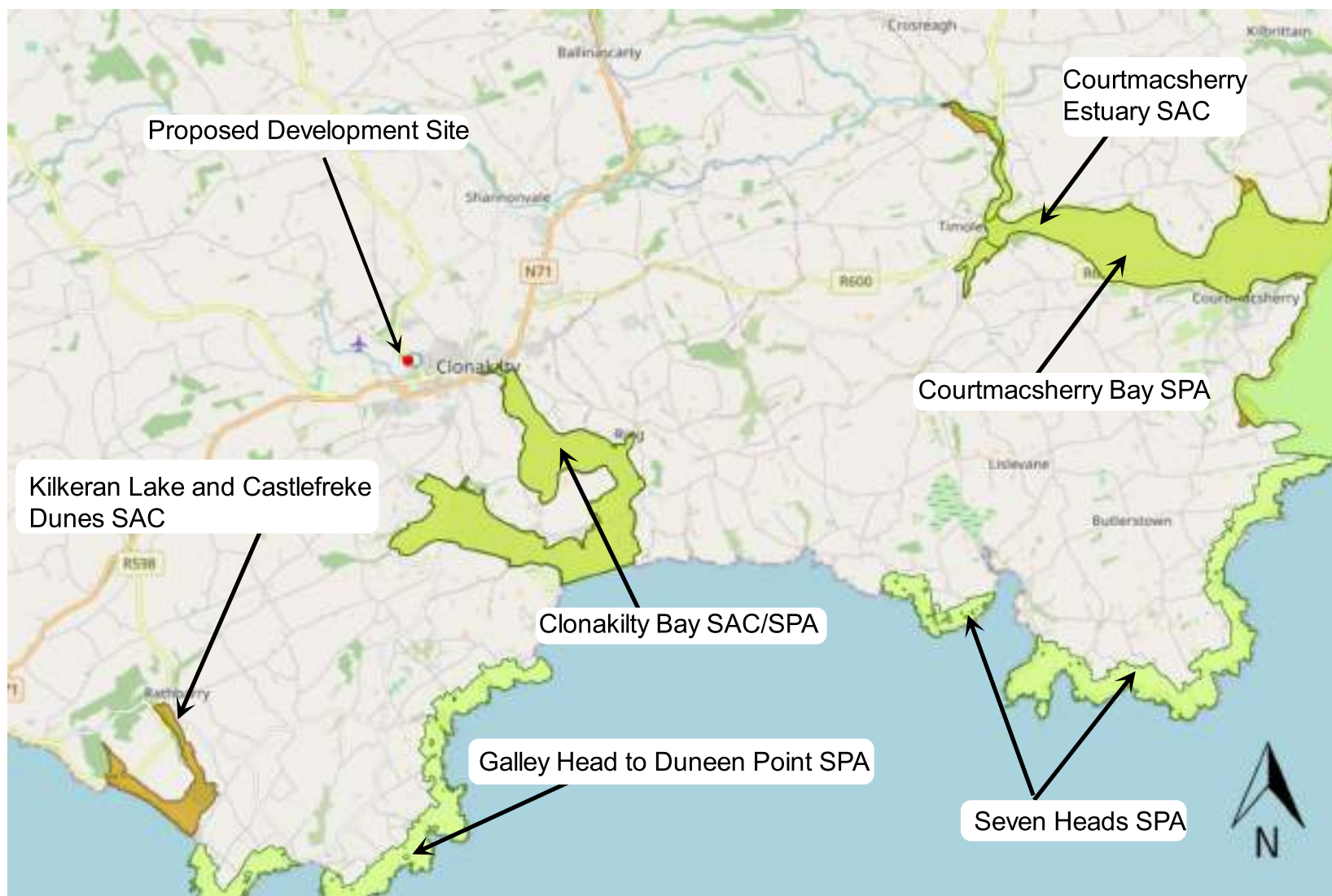


Figure 3. European Sites within zone of influence proposed development site | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | Not to scale



Figure 4. Location of proposed development site (approximate boundary) and Templebryan North Stream (now culverted near proposed development site (X shows historical location) relative Clonakilty Bay SAC (brown and green shading) and Clonakilty Bay SPA (Green shading) Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/>) | Not to scale

Clonakilty Bay SAC in west Cork is an intertidal expanse that stretches from Clonakilty to the open sea and comprises two small estuaries separated by Inchydoney Island. The site also includes adjacent sand dunes and inland marshes, and therefore is a coastal complex with a good diversity of habitats. This site is of considerable scientific interest because it contains a good diversity of coastal habitats. These habitats show a succession from salt to freshwater influences and include six which are listed on Annex I of the E.U. Habitats Directive. Its value is enhanced considerably by the birdlife it supports. The occurrence of Black-tailed Godwit in internationally important numbers is particularly significant. The site also supports nationally important numbers of seven other species of waterfowl as well as two species listed on Annex I of the E.U. Birds Directive.

Clonakilty Bay SPA is a wetland complex that stretches from the town of Clonakilty to the open sea. It comprises two small estuarine bays, Clonakilty Harbour and Muckcross Strand, separated by Inchydoney Island and its impoldered isthmus. Several small rivers flow into the site, notably the Fealge River. At low tide, substantial areas of sand and mud flats are exposed. The construction of a causeway across the inner part of Muckcross Strand created an extensive wetland complex known as Cloheen Strand Intake. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shelduck, Dunlin, Black-tailed Godwit and Curlew. 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.

Courtmacsherry Bay SPA is situated approximately 12 km south of Bandon and immediately west of the village of Timoleague in west Co. Cork. This is an important site for wintering waterfowl. It supports internationally important numbers of *Limosa limosa* and nationally important numbers of eleven other species: *Gavia immer*, *Pluvialis apricaria*, *Tadorna tadorna*, *Anas penelope*, *Mergus serrator*, *Vanellus vanellus*, *Calidris alpina*, *Limosa lapponica*, *Numenius arquata*, *Larus ridibundus* and *Larus canus*. It is among the top ten Irish sites for *Larus canus*. The population of *Limosa limosa* is substantial (3.7% of the all-Ireland total) and of special note because, despite its relatively small size, the site is among the top ten Irish sites for this species. *Haematopus ostralegus* and *Tringa nebularia* also occur in significant numbers.

4.2 Nationally Protected Sites

Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are national designations under the Wildlife Act 1976, as amended. A Natural Heritage Area (NHA) is designated for its wildlife value and receives statutory protection. These areas are considered nationally important for the habitats present or which holds species of plants and animals whose habitats needs protection. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation.

Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995 and have not since been statutorily proposed or designated. These sites are also of significance for wildlife and habitats. Prior to statutory designation, pNHAs are still subject to limited protection, in the form of:

- Agri-environmental farm planning schemes support the objective of maintaining and enhancing the conservation status of pNHAs;

- There is a requirement for the Forest Service to gain NPWS approval before they will pay afforestation grants on pNHA lands; and,
- A recognition of the ecological value of pNHAs by Planning and Licencing Authorities.

The NHAs and pNHAs located in the vicinity of the proposed development site are listed in **Table 2** and are shown in **Figure 5**.

Clonakilty Bay pNHA is potentially hydrologically connected to the proposed development site via the River Fealge ad detailed in **Table 2**. No potential pathways with other NHAs/pNHAs have been identified.

Table 2. Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHAs) in the vicinity of the proposed development site

NHAs & NHAs/pNHAs	Site Code	Overlaps with European site	Site description	Distance at closest point and potential source-pathway-receptor link
Clonakilty Bay pNHA	000091	Clonakilty Bay SAC and Clonakilty Bay SPA	<p>Estuarine and Coastal site. The site supports the following habitats and bird species:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide • Annual vegetation of drift lines • Embryonic shifting dunes • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) • Fixed coastal dunes with herbaceous vegetation (grey dunes) • Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) • Shelduck (<i>Tadorna tadorna</i>) • Dunlin (<i>Calidris alpina</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) • Curlew (<i>Numenius arquata</i>) 	<p>1.2km southeast (1.3km downstream). The River Fealge is located approximately 160m south of the proposed development site. This stream runs east-southeast before flowing into Clonakilty Bay approximately 1.3km downstream of the proposed development site. As noted above, the site slopes south and during construction uncontrolled, contaminated surface water runoff could potentially flow into the River Fealge. During operation, surface water runoff from the proposed development will discharge to the River Fealge via the existing Beechgrove Estate infrastructure.</p> <p>During construction and operation, contaminated surface water runoff could potentially impact on water quality within the River Fealge and Clonakilty Bay pNHA. Construction works could also spread invasive species outside the proposed development site and impact on the pNHA downstream.</p> <p>During operation, wastewater from the proposed development will discharge to the Clonakilty Bay Via Clonakilty Wastewater treatment plant (WWTP).</p> <p>Given the location of the proposed development relative to the National site boundary and the identified downstream</p>

NHAs & NHAs/pNHAs	Site Code	Overlaps with European site	Site description	Distance at closest point and potential source-pathway-receptor link
				hydrological connectivity, a potential source pathway connector link has been identified.
Gallane Lake	001052	No	<p>This site comprises a small lake with fringing aquatic vegetation. The site supports a range of wetland bird species including:</p> <ul style="list-style-type: none"> • Mallard (<i>Anas platyrhynchos</i>) • Wigeon (<i>Anas penelope</i>) • Coot (<i>Fulica atra</i>) • Lapwing (<i>Vanellus vanellus</i>) • Curlew (<i>Numenius arquata</i>) • Mute Swan (<i>Cygnus olor</i>) • Whooper Swan (<i>Cygnus cygnus</i>) 	2.4km northeast. No hydrological or other pathway.
Bateman's Lough	001037	No	<p>Small fluctuating lake with aquatic vegetation. Supports a range of wet- land bird species including:</p> <ul style="list-style-type: none"> • Mallard (<i>Anas platyrhynchos</i>) • Wigeon (<i>Anas penelope</i>) • Teal (<i>Anas crecca</i>) • Tufted Duck (<i>Aythya fuligula</i>) • Pochard (<i>Aythya ferina</i>) • Whooper Swan (<i>Cygnus cygnus</i>) 	5.2km northeast. No hydrological or other pathway.

NHAs & NHAs/pNHAs	Site Code	Overlaps with European site	Site description	Distance at closest point and potential source-pathway-receptor link
			<ul style="list-style-type: none"> • Lapwing (<i>Vanellus vanellus</i>) • Cormorant (<i>Phalacrocorax carbo</i>) • Golden Plover (<i>Pluvialis apricaria</i>) • Curlew (<i>Numenius arquata</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) 	

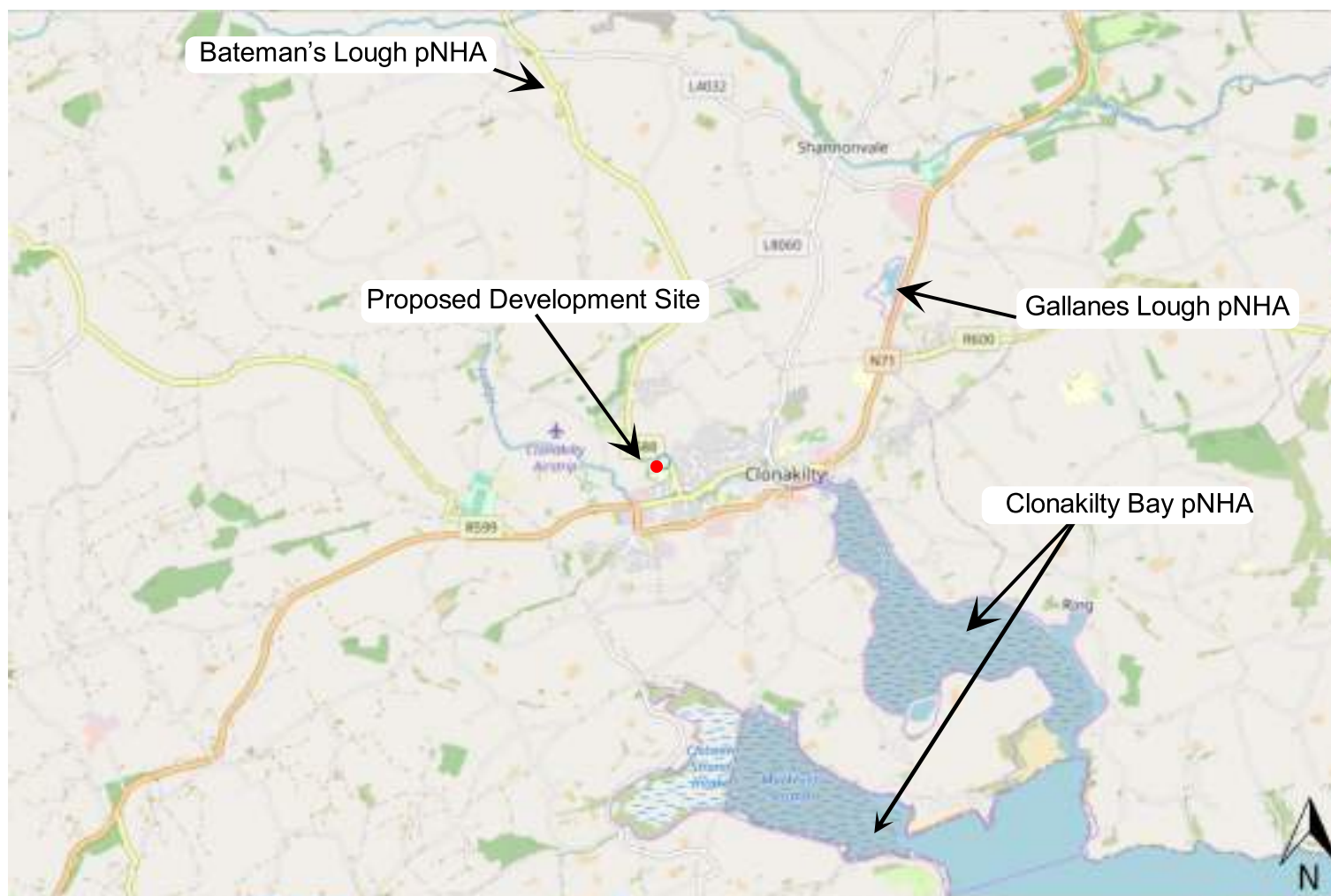


Figure 5. NHAs and pNHAs in the vicinity of proposed development site | Source: EPA Envision mapping (<https://gis.epa.ie/EPAMaps/>) | Not to scale

4.3 Important Bird Areas – Clonakilty Bay

Important Bird and Biodiversity Areas (IBAs) are sites selected as important for bird conservation because they regularly hold significant populations of one or more globally or regionally threatened, endemic or congregator bird species or highly representative bird assemblages. The European IBA programme aims to identify, monitor and protect key sites for birds all over the continent. It aims to ensure that the conservation value of IBAs in Europe (now numbering more than 5,000 sites or about 40% of all IBAs identified globally to date) is maintained, and where possible enhanced. The programme aims to guide the implementation of national conservation strategies, through the promotion and development of national protected-area programmes. Through their designation they aim to form a network of sites ensuring that migratory species find suitable breeding, stop-over and wintering places along their respective flyways.

The function of the Important Bird Area (IBA) Programme is to identify, protect and manage a network of sites that are important for the long-term viability of naturally occurring bird populations, across the geographical range of those bird species for which a site-based approach is appropriate. The proposed development site lies approximately 1.2km from the Inner Clonakilty Bay IBA (Site Code: IE083).

The site qualifies for designation under the following IBA Criteria (2000):

- B1i - The site is known or thought to hold $\geq 1\%$ of a flyway or other distinct population of a waterbird species
- B2 - The site is one of the most important in the country for a species with an unfavourable conservation status in Europe and for which the site-protection approach is thought to be appropriate.
- C3 - The site is known to regularly hold at least 1% of a flyway population or of the EU population of a species threatened at the EU level (not listed on Annex 1 of The Birds Directive).

Table 3. Summary of the Inner Clonakilty Bay IBA trigger species.

Species	Current IUCN Red List Category	Season	Year(s) of estimate	Population estimate	IBA Criteria Triggered
Eurasian Curlew (<i>Numenius arquata</i>)	NT	winter	1995	1844 individuals	B2
Black-tailed Godwit (<i>Limosa limosa</i>)	NT	winter	1995	945 individuals	B1i, C3

5. Flora

5.1 Habitats

5.1.1 Historical mapping/Aerial Photography

A review of historical mapping and aerial photography indicates that the proposed development site has been used for agricultural lands since the first edition mapping of 1829-1842 (**Figure 6**). The lands in the vicinity of the site have changed considerably in the intervening years. The proposed development site would have formed part of the larger Beechgrove Estate (Lower Tawnies Cottage) with associated gardens, parkland and woodland. The woodland in the vicinity, which can be seen below in aerial photography from 2018, extended along the western and southern boundary of the proposed development site (**Figure 7**). A significant area of woodland was removed in subsequent years during the development of the Beechgrove Housing Estate as can be seen on the 2023 aerial photography of the site (**Figure 8**).



Figure 6. First edition maps with overlay of proposed development site boundary (red line) | Source Geohive mapping



Figure 7. Aerial photography 2018 with overlay of proposed development site boundary (red line) | Source Google Earth



Figure 8. Aerial photography 2023 with overlay of proposed development site boundary (red line) | Source Google Earth

5.2.2 Site Surveys


Site surveys were carried out on the 20th September 2022 and 6th April 2023 to identify the habitats, flora and fauna present at the site. The terrestrial and aquatic habitats within or adjacent to the proposed development site were classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I/qualifying habitats, where required. Habitat surveys were carried out at the proposed development site by Scott Cawley in 2017 as part of the ecological assessment for the Beechgrove Housing Estate. These surveys are referred to where relevant.

The ecological value of habitats has been defined using the classification scheme outlined in the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) which is included in **Appendix 1**. It should be noted that the value of a habitat is site specific and will be partially related to the amount of that habitat in the surrounding landscape. Habitats that are considered to be good examples of Annex I and Priority habitats are classed as being of International or National Importance. Semi-natural habitats with high biodiversity in a county context and that are vulnerable, are considered to be of County Importance. Habitats that are semi-natural, or locally important for wildlife, are considered to be of Local Importance (higher value) and sites containing small areas of semi-natural habitat or maintain connectivity between habitats are considered to be of Local Importance (lower value).

A current overview of habitats recorded within and adjacent to the proposed development site are shown in **Figure 9** and these habitats are described in **Table 4**. Site photographs are included below.

Table 4. Habitat recorded within the proposed development site and their relative value.

Habitat	Comments	Ecological value (NRA guidelines)
Improved agricultural grassland GA1	<p>The proposed development site comprises of one large field surrounded by green mesh fencing. This is classified as improved agricultural grassland which in the absence of active management has become slightly more diverse. Species noted include Ragweed, Spear thistle, Common mouse-ear, Clovers, Meadow grass, Perennial rye grass, Sorrel, Broad leaved dock, Ribwort plantain, Brassicas, Hogweed and Creeping buttercup.</p> <p>It is noted that during the Scott Cawley surveys of the proposed development site in 2017, this area was also classified as improved agricultural grassland.</p>  <p>Plate 1. Improved agricultural grassland</p>	Local importance (Lower value)
Treeline WL2	<p>A treeline runs along the southern boundary of the site and includes Holly, Hawthorn and Sycamore. Understorey species include Nettle, Lesser celandine, Herb Robert, Ivy, Cleavers, Bramble and Hogweed</p> <p>A rookery is located within this treeline with active nesting recorded during the April site survey. Approximately 15 nests were recorded within this area.</p> <p>Along the western boundary in new mesh fence has been created which separates the proposed development site from the Beechgrove Housing Estate. A copse of mature Beech has been retained within the Beechgrove Housing Estate and this supports a substantial rookery. Approximately 45 nests are located within this area, to the immediate west of the proposed development site boundary. A number of these trees and nests overhang the proposed development site boundary.</p>	Local importance (higher value)

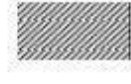
Habitat	Comments	Ecological value (NRA guidelines)
	 <p>Plate 2. Rookery on southern treeline.</p>  <p>Plate 3. Treeline within Beechgrove Estate outside western boundary of proposed development site. Rookery present</p>	
Buildings and artificial surfaces BL3/Recolonising bare ground ED3	<p>Part of the site is being used as a construction compound for building works at Gaelscoil Mhichíl Uí Choileáin. There are large areas of bare ground where construction materials are stored including blocks, pallets, insulation material, sand and other building material. Portacabins, topsoil stockpiles and areas of hardcore for parking are also present. Some recolonisation by grass and common herbaceous species is occurring in this area, however it is mostly unvegetated.</p> <p>A temporary access road leading to the site compound runs along the eastern boundary of the site.</p> <p>The northern boundary of the site is currently delineated by construction fencing which separates this proposed development site from a garden to the north.</p>	Local importance (lower value)

Habitat	Comments	Ecological value (NRA guidelines)
	 <p data-bbox="509 831 1158 864">Plate 4. Construction compound at north of the site</p>  <p data-bbox="509 1406 1158 1440">Plate 5. Hardcore track along eastern boundary</p>	

Legend



Improved agricultural grassland GA1



Buildings and artificial surfaces BL3/Recolonising bare ground ED3



Treeline WL2



Figure 9. Habitats recorded within proposed development site

5.2 Rare Flora

The National Biodiversity Data Centre (NBDC) online database provides data on the distribution of mammals, birds, and invertebrates within the 10 km grid squares. The site of the proposed development lies within Ordnance Survey National Grid 10km square W34.

The NBDC notes the presence of a single protected plant species within grid square W34; Penny Royal *Mentha pulegium*. This species is protected by the Flora Protection Order 2022 (S.I. No. 235 of 2022)). This species was not recorded within study area during site survey. One near threatened species *Glebionis segetum* has also been recorded within W34.

No rare species were recorded during the site survey, nor are they expected to occur given that the habitats within the works area are common.

Table 5. NBDC flowering and endangered flowering plants for grid square W34.

Flowering Species	plant	Latin Name	Designations
Penny Royal		<i>Mentha pulegium</i>	Protected Species: Flora Protection Order & Threatened Species: Endangered
Corn Marigold		<i>Glebionis segetum</i>	Near threatened

Source: NBDC 28/07/23

5.3 Invasive Species

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

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

The NBDC lists a number of terrestrial high impact invasive species from grid square W34 (**Table 6**).

Table 6. NBDC list of high impact invasive species.

Species group	Species name
Flatworm (Turbellaria)	<i>Arthurdendyus triangulatus</i>
flowering plant	Canadian Waterweed (<i>Elodea canadensis</i>)
flowering plant	Indian Balsam (<i>Impatiens glandulifera</i>)
flowering plant	Japanese Knotweed (<i>Fallopia japonica</i>)
flowering plant	<i>Rhododendron ponticum</i>
insect - beetle (Coleoptera)	Harlequin Ladybird (<i>Harmonia axyridis</i>)
terrestrial mammal	Brown Rat (<i>Rattus norvegicus</i>)
terrestrial mammal	Sika Deer (<i>Cervus nippon</i>)

Source NBDC database 28/07/23

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

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

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

No third schedule invasive species or species which are at risk of having damaging effects (Kelly *et al.* 2013), were recorded within the proposed development site. Sycamore, which is listed as a medium impact invasive species by the NBDC was recorded. However this species is widely naturalised and no damaging effects from this species have been identified within the terrestrial habitats present at the proposed development site.

6. Fauna

6.1 Bats

6.1.1 Bats background

In Ireland, nine species of bat are currently known to be resident. These are classified into two Families: the *Rhinolophidae* (Horseshoe bats) and the *Vespertilionidae* (Common bats). The lesser horseshoe bat *Rhinolophus hipposideros* is the only representative of the former Family in Ireland. All the other Irish bat species are of the latter Family and these include three pipistrelle species: common *Pipistrellus pipistrellus*, soprano *Pipistrellus pygmaeus* and Nathusius’ *Pipistrellus nathusii*, four *Myotis*: Natterer’s *Myotis nattereri*, Daubenton’s *Myotis daubentonii*, whiskered *Myotis mystacinus*, Brandt’s *Myotis brandtii*, the brown long-eared *Plecotus auritus* and Leisler’s *Nyctalus leisleri* bats.

Whiskered and Natterer's bats are listed as '*Threatened in Ireland*', while the other species are listed as 'Internationally Important' in the Irish Red Data Book 2: Vertebrates (Whilde, 1993). The population status of both Whiskered and Natterer's bats was considered '*indeterminate*' because of the small numbers known of each, a few hundred and approximately a thousand respectively. Ireland is considered to be an international stronghold for Leisler's bat, whose global status is described as being at '*low risk, near threatened*' (LR; nt) by the IUCN (Hutson, *et al.*, 2001).

Near threatened status is applied to those taxa that are close to being listed as vulnerable (facing a high risk of extinction in the wild in the medium-term future on the basis of a range of criteria defined by the IUCN). The Irish population of the Lesser Horseshoe Bat is estimated at 14,000 individuals and is considered of International Importance because it has declined dramatically and become extinct in many other parts of Europe. Data collected shows that the species increased significantly between from the early 1990's to present.

All bat species are protected under the Wildlife Acts (1976 & 2000) which make it an offence to wilfully interfere with or destroy the breeding or resting place of all species; however, the Acts permit limited exemptions for certain kinds of development. All species of bats in Ireland are listed in Schedule 5 of the 1976 Act and are therefore subject to the provisions of Section 23 which make it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat; or
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.

All bats are listed on Annex IV of the EU Habitats Directive. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS. Furthermore, on 21st September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements.

In addition to domestic legislation bats are also protected under the EU Habitats Directive (92/43/EEC) with all bat species are listed in Annex IV of the Directive. Lesser Horseshoe Bat is further listed in Annex II of the EU Habitats Directive. The level of protection offered to Lesser Horseshoe Bats effectively means that areas important for this species are designated as Special Areas of Conservation. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate under the European Communities (Birds and Natural Habitats) Regulations 2011 (which transposed the EU Habitats Directive into Irish law) issued by the National Parks and

Wildlife Service (NPWS). These designations are usually roost or hibernacula centered and focus on large roosting sites for the species, usually with >50 individuals in winter or >100 individuals in summer.

The review of existing bat records, in proximity to the study site showed that only two Irish bat species have been recorded within W32 (**Table 7**). It is noted that other species which have not been included within this database are also likely to occur. Lesser Horseshoe Bat is the only species of bat listed on Annex II of the Habitats Directive (Directive 92/43/EEC). The closest recorded records for Lesser horseshoe bat is located approximately 6.7km southwest of the proposed development site at Castlefreke (NBDC records). Common bat species such as Soprano Pipistrelle, Brown Long-eared Bat, Daubenton's Bat are likely to occur in the vicinity of Clonakilty town. Other species such Nathusius' Pipistrelle and Brandt's bat, are rarer Irish species, which are less likely to occur.

Table 7. Presence of Irish bat species within grid square W34.

Common name	Scientific name	Presence
Lesser Noctule	<i>Nyctalus leisleri</i>	Present
Pipistrelle	<i>Pipistrellus pipistrellus sensu lato</i>	Present
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Absent
Daubenton's Bat	<i>Myotis daubentonii</i>	Absent
Natterer's Bat	<i>Myotis nattereri</i>	Absent
Brown Long-eared Bat	<i>Plecotus auritus</i>	Absent
Whiskered Bat	<i>Myotis mystacinus</i>	Absent
Lesser Horseshoe	<i>Rhinolophus hipposideros</i>	Absent
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	Absent

Source NBDC 27/08/23

A study by Lundy *et al.* (2011) examined the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats.

The habitat indices for all Irish bats for the landscape at the proposed development site is shown in **Table 8**.

Table 8. Model Predicted Habitat suitability indices for All Irish bat species

Bat species	Common Name	Habitat indices
All Bats		23.11
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	32
<i>Plecotus auritus</i>	Brown long-eared bat	38
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	31
<i>Rhinolophus hipposideros</i>	Lesser horseshoe	3
<i>Nyctalus leisleri</i>	Leisler's bat	27
<i>Myotis mystacinus</i>	Whiskered bat	23
<i>Myotis daubentonii</i>	Daubenton's bat	20
<i>Pipistrellus nathusii</i>	Nathusius' pipistrelle	4
<i>Myotis nattereri</i>	Natterer's bat	30

Source: NBDC 28/07/23

Bats generally make use of large mature trees that contain natural holes, cracks/splits in major limbs, loose bark, hollows/cavities, dense epicormic growth (bats may roost within it) and bird and bat boxes. The importance of trees to bats varies with species, season and foraging behaviour. For Leisler's bats, trees are essential for both summer and winter roosts while Daubenton's and Natterer's bats utilise trees more often during the summer months. Other species such as brown long-eared bats and pipistrelle bats avail of trees in the winter months. In general, individual males throughout the season use tree roosts, more often, while females will use trees for temporary night roosts or night perches for consuming prey. Hollow trees are widely used by bats for both summer and winter roosts (weather dependent) and bats will roost in 'sound' trees in crevices, holes and under split bark. Bats rest, give birth, raise young and hibernate in tree holes, crevices and beneath loose bark. Species of trees utilised by bats include oak, ash, beech and Scots pine. No buildings and no mature trees with potential for bat roosts are located within the proposed development.

Trees, especially native ones also play host to numerous insect species which are prey items for bat species. Trees also provide shelter for swarming insects which bats will avail of. In addition, trees are important commuting routes for bats. A gap in a hedge/treeline of greater than 10m may force some species of bats to seek an alternative commuting route.

6.1.2 Bats at Proposed Development Site

Bat surveys were previously carried out as part of the Beechgrove Housing Estate development in September 2017 (Scott Cawley 2017). These surveys includes lands within the proposed development site. During this survey a total of four species of bat were recorded foraging or commuting within the area i.e. Common pipistrelle, Soprano Pipistrelle, Leisler's and Brown Long-eared Bat. These species were largely recorded within areas of mixed broadleaved woodland, outbuildings and treelines/hedgerows. Remnants of the mixed broadleaved woodland remain in the Beechgrove Housing Estate on the western boundary of

the proposed development site, where a copse of Beech trees have been retained and along the treeline at the southwest of the proposed development site. However, this woodland habitat was removed as part of the Beechgrove Housing Development. The outbuildings within the Beechgrove Housing Estate have now also been removed.

As discussed above, the habitats within the proposed development site are dominated by improved agricultural grassland with a single treeline along the southern boundary. The retained copse of trees within the Beechgrove Housing Estate overhangs the proposed development site along its western boundary. Lighting of the adjoining road and housing has created light spillage onto these boundary habitats.

DixonBrosnan carried out a dusk activity survey at the proposed development site during suitable weather conditions (sunset temperatures above 10°C, no rain and no strong wind) on the 20th September 2022 using an EchoMeter Touch 2 PRO and Batbox Duet. The survey began 19.15 (15 minutes before sunset) and ended at 22.10. Bat activity commenced at 19.57 with a single Leisler's Bat overflying the site. Soprano pipistrelle foraging activity began at 20.04 and Common pipistrelle activity began at 20.12. Common and Soprano Pipistrelle foraging continued throughout the survey period and was largely focused around the Beech trees overhanging the western boundary of the site. Foraging by both Common and Soprano Pipistrelle was also recorded along the southern treeline. Leisler's Bat were recorded sporadically during the survey. No prolonged foraging behaviour of Leisler's Bat was recorded.

The trees within the proposed development site i.e. along southern boundary, lack potential roost features (PRFs) such as hazard beams, peeling bark and trunk/branch cavities. It is noted that two trees to the west of the proposed development site boundary have previously been classified as having high roost potential for bats based on the Scott Cawley (2017) surveys.

6.2 Otter

Otters *Lutra lutra*, along with their breeding and resting places are protected under the provisions of the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act, 2000. Otters have additional protection because of their inclusion in Annex II and Annex IV of the Habitats Directive which is transposed into Irish law in the European Communities (Natural Habitats) Regulations (S.I 94 of 1997), as amended. Otters are also listed as requiring strict protection in Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats and are included in the Convention on International Trade of Endangered species (CITES).

Although rare in parts of Europe they are widely distributed in the Irish countryside in both marine and freshwater habitats. Otters are solitary and nocturnal and as such are rarely seen. Thus, surveys for Otters rely on detecting signs of their presence. These include spraints (faeces), anal gland secretions, paths, slides, footprints and remains of prey items. Spraints are of particular value as they are used as territorial markers and are often found on prominent locations such as grass tussocks, stream junctions and under bridges. In addition, they are relatively straightforward to identify.

Otters occasionally dig out their own burrows but generally they make use of existing cavities as resting places or for breeding sites. Suitable locations include eroded riverbanks, under trees along rivers, under fallen trees, within rock piles or in dry drainage pipes or culverts etc.

If ground conditions are suitable the holt may consist of a complex tunnel and chamber system. Otters often lie out above ground especially within reed beds where depressions in the vegetation called “couches” are formed. (NRA 2008). Generally, holts or resting areas can be located by detecting signs such as spraints or tracks.

In contrast natal holts which are used by breeding females can be extremely difficult to locate. They are often located a considerable distance from any aquatic habitats and Otters may also use habitats adjoining small streams with minimal or no fish populations. In addition, natal holts are usually carefully hidden and without obvious sprainting sites. Otters do not have a well-defined breeding season.

It is noted that Otters are largely nocturnal, particularly in areas subject to high levels of disturbance as evidenced by the presence of Otters in the centre of Cork and Limerick City. Thus, Otters are able to adapt to increased noise and activity levels; however, breeding holts are generally located in areas where disturbance is lower.

A review of existing records within a 10km radius of the study site (Grid Square W34) showed that Otter or signs of Otter have been recorded on eight occasions, the most recent being in December 2010. Otters have been recorded foraging along the Templebryan North Stream approximately 2km northwest of the proposed development site (Otter survey of Ireland 1982 - Vincent Wildlife Trust). The Templebryan North Stream is culverted in proximity to the proposed development. The closest watercourse is the River Fealge, located 160m south of the proposed development site. While Otters are likely to forage along the River Fealge, the proposed development is separated from the river by existing housing and the Dunnes Stores development. There are no wetland habitats or watercourses within the proposed development site which could provide foraging habitats for Otter. No signs of Otter were recorded during the site survey and no signs of Otter (i.e. spraints, track, holts, couches, feeding signs etc.) were recorded within 150m of the proposed development site. The proposed development site is of negligible value for Otter.

6.3 Other terrestrial mammals

Eleven other species of terrestrial mammal have been recorded within a 10km radius of the proposed development site. Seven of which are protected under the Irish Wildlife Act; namely Badger *Meles meles*, Pygmy Shrew *Sorex minutus*, Irish Hare *Lepus timidus subsp. hibernicus*, Irish Stoat *Mustela erminea subsp. hibernica*, Sika Deer *Cervus nippon*, Pine Marten (*Martes martes*) and Hedgehog *Erinaceus europaeus*.

6.3.1 Badger

Badgers their setts are protected under the provisions of the Wildlife Act 1976, as amended, and it is an offence to intentionally, knowingly or unknowingly kill or injure a protected species, or to willfully interfere with or destroy the breeding site or resting place of a protected wild animal. Badger setts are formed by a complex group of interlinked tunnels, and therefore works in proximity to setts can potentially cause damage a protected species. Badgers are also protected under Appendix III of the Berne. Badgers are known to occur within the wider landscape (NBDC). However, no signs of Badgers such as snuffle holes (feeding signs), latrines or setts were found within the subject lands during surveys in September 2017 (Source Scott Cawley), September 2022 or April 2023. While agricultural grassland is present at the

site, it is surrounded by the contiguous urban landscape and is likely to be of negligible value for Badgers.

6.3.2 Sika Deer

Sika Deer prefer forest with dense understorey, thickets, natural woodlands and commercial plantations, but will also forage in open grassy areas with dense cover nearby. Sika Deer are highly opportunistic feeders, foraging on grasses to a range of shrubs and tree species. However, no signs of Sika Deer were recorded during the site visit and the site is of negligible value for this species.

6.3.3 Pygmy Shrew

Pygmy Shrew is common throughout mainland Ireland and has a preference for habitats such as hedgerows and grasslands; they have also been found utilizing stone walls. Due to the habitats present within the proposed site it is possible that Pygmy Shrew may occur.

6.3.4 Hedgehog

Hedgehog is also listed on Appendix III of the Berne Convention can be found throughout Ireland, with male Hedgehogs having an annual range of around 56 hectares. Generally, Hedgehogs prefer edge habitat and pasture but in recent years have begun to colonize urban areas. It is likely that Hedgehog will occur within the proposed development site.

6.3.5 Irish hare

Irish Hare is one of three lagomorphs found on the Island of Ireland and the only native lagomorph. It is listed on Appendix III of the Berne Convention, Annex V(a) of the EC Habitats Directive (92/43/EEC) and as an internationally important species in the Irish Red Data Book.

The Irish hare is adaptable and lives in a wide variety of habitats from heaths, upland grasslands to coastal sand dune systems. It typically reaches its highest densities on farmland, particularly where there is a mix of grassland and arable fields along with hedgerows and other cover. Hare are likely to occur in the vicinity but the proposed development site is of negligible value for this species.

6.3.6 Irish Stoat

Irish Stoat is one of the species protected under regulations (Protection of Wild Animals) in 1980 which enabled Ireland to comply with the provisions of the Bern Convention of European Wildlife and Natural Habitats, which was ratified by Ireland in April 1982. Irish stoats occur in most habitats with sufficient cover, including urban areas. It is likely that stoat will occur in this area.

6.3.7 Pine Marten

Pine Marten is protected in Ireland by both national and international legislation. Under the Irish Wildlife Acts it is an offence, except under licence, to capture or kill a Pine Marten, or to destroy or disturb its resting places. The European Union's Habitats & Species Directive further obliges Ireland to maintain the favourable conservation status of the Pine Marten throughout its range. There are one record of Pine Marten in W34 (NBDC). However, there are no valuable habitats for this species within the proposed development site boundary.

6.4 Reptiles and Amphibians

According to records held by the NBDC, Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris* have been recorded within grid square W34. Common Frog is listed in Annex V of the EU Habitats Directive and is protected under the Wildlife Acts. Smooth Newt, is commonly encountered near waterbodies, adult newts are actually terrestrial, only returning to water bodies to breed, although the NBDC has no records of this species within W34.

There is no potential habitat for these species within the proposed development site.

6.5 Birds

The NBDC has recorded the following Annex I bird species within W34 Bar-tailed Godwit (*Limosa lapponica*), Kingfisher (*Alcedo atthis*), Dunlin (*Calidris alpina*), Golden Plover (*Pluvialis apricaria*), Hen Harrier (*Circus cyaneus*), Little Egret (*Egretta garzetta*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*), Red-billed Chough (*Pyrrhocorax pyrrhocorax*), Sandwich Tern (*Sterna sandvicensis*) and Whooper Swan (*Cygnus cygnus*). There is no suitable habitat for these Annex I species within the proposed development site boundary.

Bird surveys for general bird usage were carried out in conjunction with habitat surveys on the 20th September 2022 and 6th April 2023.

Bird species listed in Annex I of the Birds Directive are considered a conservation priority. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation (Gilbert *et al.* 2021). Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Species recorded during the site surveys are shown in **Table 9**.

Table 9. Bird Species recorded during site surveys

Species	Common name	Latin name	Birds Directive	BOCCI	
			Annex I	Red List	Amber List
	Blackbird	<i>Turdus merula</i>			
	Blue Tit	<i>Cyanistes caeruleus</i>			
	Chaffinch	<i>Fringilla coelebs</i>			
	Dunnock	<i>Prunella modularis</i>			
	Goldfinch	<i>Carduelis carduelis</i>			
	Great Tit	<i>Parus major</i>			
	Robin	<i>Erithacus rubecula</i>			

Species		Birds Directive Annex	BOCCI	
Common name	Latin name	I	Red List	Amber List
Rook	<i>Corvus frugiligus</i>			
Wood Pigeon	<i>Columba palumbus</i>			
Wren	<i>Troglodytes troglodytes</i>			

The proposed development site is of local value for terrestrial bird species that are relatively common in the Irish countryside. The overgrown grassland habitat at the site is of minimal value for birds. Early successional species within the grassland may provide some foraging habitat for species such as Goldfinch. However, no grassland nesting species were recorded. The treeline at the southern boundary of the site provides the most valuable habitats for nesting birds within the proposed development site. A rookery, with approximately 15 nests was recorded within this treeline. This forms part of a larger rookery with the Beechgrove Housing Estate.

6.6 Other species

A search of the NBDC database was carried out to determine if any protected, rare or notable species of invertebrates within the 2km grid square which overlaps with the proposed development site (W34Q).

One threatened species has been recorded within W34Q i.e. Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*). During the habitats survey no rare or notable species of invertebrate were observed within the application site. Whilst no site is without invertebrate interest, it is considered unlikely, given the habitat types, that the proposed development site would support any protected invertebrate species.

A number of threatened bryophyte species have been recorded within W34Q i.e. mosses and liverworts. However, no notable species of bryophyte were recorded during site surveys.

The River Fealge, is known to support Salmon *Salmo salar* European eel *Anguilla anguilla* and Brown Trout *Salmo trutta* (JBA Consulting 2017). Otter have been recorded foraging along the Templebryan North Stream (Source NBDC) upstream of the proposed development site it can be concluded that this tributary of the River Fealge, is also likely to support fish stocks. However, as noted above, this stream is culverted in proximity to the proposed development.

7. Water Quality

7.1 River Basin Management Plan for Ireland 2022-2027 (3rd Cycle)

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

The EPA has published an updated draft Catchment Assessment for each of our 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was published in July 2022, aims to build on the progress made during the second cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 10** and the location of these shown in **Figure 10**.

Table 10. Water Framework Directive Data – Relevant data

Bandon Ilen (HA 20)			
This catchment includes the area drained by the Rivers Bandon and Ilen and all streams entering tidal water between Templebreedy Battery and Mizen Head, Co. Cork, draining a total area of 1,803km ² . The largest urban centre in the catchment is Bandon. The other main urban centres in this catchment are Kinsale, Clonakilty, Skibbereen and Dunmanway. The total population of the catchment is approximately 71,211 with a population density of 39 people per km ² . Similarly to the surrounding Munster catchments, this catchment is dominated by east–west trending sandstone ridges. In this catchment the low lying parts are predominantly underlain by mudstones and the mountainous peninsular areas by old red sandstone..			
The proposed development site is located within the Clonakilty[Stream]_SC_010 sub catchment. Three out of six river water bodies are AT RISK, Carhoo_010, Tinneel Stream_010 and Ownahinchy_010 due to Moderate biological status. Hayes Cross Roads_010 and North Ring Curraghgrane_010 are under REVIEW due to their unassigned status.			
Point sources are the significant pressures on Tinneel Stream_010, agriculture is the significant pressure on Ownahinchy_010, and hydro-morphological impacts (channel modification) appear to be driving status within Carhoo_010. Local catchment assessments are required for the REVIEW water bodies so as to determine whether any issues exist.			
Sub-catchment: Clonakilty[Stream]_SC_010			
Name	River Risk	Waterbodies	WFD Status 2016-2021
Clonakilty Stream_010	At risk		Moderate
Clonakilty Harbour	At risk		Poor
			Pressures
			n/a
			Agriculture

Source: wfdireland map system & www.catchments.ie



Figure 10. WFD catchments (3rd cycle) in the vicinity of the proposed development site Source: EPA Envision mapping (<https://gis.epa.ie/EPAMaps/>) | not to scale

7.2 Urban Wastewater Treatment Directive

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

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

As part of the proposed development wastewater discharging from the proposed development will be conveyed to the Clonakilty and Environs Wastewater Treatment Plant (WWTP) (D0051-01) for treatment prior to discharging into the Clonakilty Bay.

8. Evaluation of Potential Impacts

8.1 Do Nothing' Impact

Most of the habitats to be affected have been significantly modified from their natural state by human activity. In pockets of semi-natural habitats within the site boundary, the general pattern of succession from grassland to scrub to woodland, particularly from boundary habitats, would be expected to continue. In the absence of development, it is expected that the lands within the planning boundary would largely remain under the same management regimes and continue to support a range of common fauna. No significant changes to the habitats within the boundary are likely to occur, in the “do nothing” scenario.

8.2 Impact Appraisal

When describing changes/activities and impacts on ecosystem structure and function, important elements to consider include positive/negative, extent magnitude, duration, frequency and timing, and reversibility (IEEM, 2018).

Section 3.7 of the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*, (EPA 2022) provides standard definitions which have been used to classify the effects in respect of ecology. This classification scheme is outlined below in **Table 11**.

Table 11. EPA Impact Classification

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment.
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative	A change which reduces the quality of the environment.
Significance	Imperceptible	An effect capable of measurement but without significant consequences.
	Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging trends.
	Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.
Duration and Frequency	Momentary Effects	Effects lasting from seconds to minutes.
	Brief Effects	Effects lasting less than a day.
	Temporary Effects	Effects lasting less than a year.
	Short-term	Effects lasting one to seven years.
	Medium-term	Effects lasting seven to fifteen years.
	Long-term	Effects lasting fifteen to sixty years.
	Permanent	Effects lasting over sixty years.
	Reversible Effects	Effects that can be undone.

Impact Characteristic	Term	Description
	Frequency	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost.
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents.
	'Worst Case'	The effects arising from a development in the case where mitigation measures substantially fail.

9. Potential Impacts

During construction and operation, potential impacts could arise from increased noise and disturbance which could result in the disturbance/displacement of birds and mammals. Increased traffic and noise associated with the site works could potentially increase levels of disturbance which could result in the disturbance/displacement of birds and mammals. Impacts on terrestrial habitats are generally restricted to direct removal of habitats. Indirect impacts may occur via damage and disturbance arising from vehicular activities and storage of overburden and materials. Levels of dust during construction are predicted to be low and effectively managed by mitigation.

Discharges of silt, were they to occur through inadequate control of surface water run-off, could impact on fisheries habitat and aquatic ecology in local waterbodies. Minor spills of hydrocarbons during construction could impact on groundwater or surface water quality with resultant impacts on aquatic ecology. Wastewater discharges during operation may also impact on local water quality.

9.1 Potential Impacts on Designated Sites

DixonBrosnan prepared a screening for Appropriate Assessment (AA) which accompany this planning application. This report investigated the potential for the proposed development to have significant effects on Natura 2000 sites (SAC/cSAC/SPA) either alone or in combination with other plans or projects. Although a potential hydrological connection to Clonakilty Bay SAC, Clonakilty Bay SPA was identified, the screening report concluded the following:

The proposed development, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives. Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

Similarly, as no significant effects have been identified in the absence of mitigation and therefore, there will be significant effect on Clonakilty Bay pNHA as a result of the proposed development.

9.2 Potential Impacts on Flora/Habitats

Based on the criteria outlined by EPA (2022), as described above, the predicted impacts are detailed in **Table 12**. No Annex I terrestrial habitats or other high value terrestrial habitats will be directly or indirectly impacted. It is noted that impacts on qualifying species and habitats within nearby Natura 2000 sites are specifically addressed by the AA screening for this development. No rare flora were recorded at the site. No invasive species were recorded.

Table 12. Predicted impacts on habitats as a result of the proposed development

Habita	Ecological value (NRA guidelines)	Predicted impact
Improved agricultural grassland GA1	Local importance (Lower value)	This habitat will be removed. Negative, not significant, long-term
Treeline WL2	Local importance (Higher value)	This habitat will be retained. However, in the absence of tree protection measures during construction negative impacts may occur. Tree protection measures will be specified to ensure there is no impact on root protection areas (See Section 11.4) Neutral, imperceptible, long-term.
Buildings and artificial surfaces BL3/Recolonising bare ground ED3	Local importance (Lower value)	This habitat will be removed. Negative, not significant, long-term.

9.3 Potential Impacts on Fauna

9.3.1 Bats

The proposed development site supports foraging bats. However, the valuable habitats are either outside the site boundary (in the case of the copse of Beech trees overhanging the west of the site) or are on the boundary of the site (i.e., southern treeline). The grassland which dominates the site does not provide suitable foraging habitat for bats. Boundary trees will be retained as part of the proposed development. Tree protection measures have also been specified to ensure there is no accidental damage to retained trees during construction works. Additional tree planting of native trees along the northern and eastern boundary of the proposed development site will provide new foraging areas for bats as these habitats mature.

Lighting deters some bat species in particular Myotis species and Brown Long-eared Bat, from foraging (Azam *et al.* 2018). Studies have shown that illumination levels as low as 0.06 lux can influence the behaviour of bats. Even a full moon night (0.02 lux) can reduce bat activity within more sheltered, darker wildlife corridors and foraging areas (e.g., woodlands). It is noted that Pipistrelle species appear to be more tolerant of light and disturbance (Speakman 1991; Stones *et al.* 2009; Haffner 1986). Leisler's Bats will also opportunistically feed on such insect gatherings in lit areas (Bat Conservation Ireland 2010). However, it is noted that more recently research suggests that even in light opportunistic foraging species such as Common Pipistrelle, foraging activity may be impacted by increased lighting (Hooker *et al.* 2022).

As construction works will largely be confined to daytime hours, lighting during the construction phase will be minimal and there will no impact on foraging bats. However, as a precautionary measure construction lighting mitigation measures have been specified in **Section 11.3** of this report. The isolated nature of the remaining treeline and copse of woodland on the proposed development site boundary means do not provide significant connectivity to the wider area. While no PRFs were recorded during the ground level assessment, it is noted that the presence of occasional roosting bats in trees at the site cannot be altogether excluded. However, given the extensive development and limited tree cover around the proposed development site, mature and semi-mature trees on the boundary of the site provide low to moderate value foraging habitat for local bat populations. During operation, lighting at the site will increase from current levels which is likely to reduce the foraging value of retained and newly planted boundary habitats. Lighting along the western boundary (outside proposed development site), for the proposed will have the most significant impact on bat foraging. While it is noted that Common and Soprano Pipistrelle are generally more tolerant to light than other bat species, the lighting of this area is likely to reduce the numbers of bats foraging in this area. Myotis species and Brown Long-eared Bat were not recorded during the 2022 site survey and lighting of this area is likely to preclude these more sensitive bat species from foraging within retained/newly planted habitats. It is noted that Brown Long-eared Bat, were recorded during the 2017 surveys of the proposed development site. However, the removal of woodland habitat and the increase in the lighting around the proposed development site is to have resulted in the absence of Brown Long-eared Bats from the 2022 site surveys. It is noted that operational lighting has been designed in line with bat lighting guidelines (in compliance with lighting requirements) to minimise impacts on local bat populations (See Outdoor lighting report from Kelliher Electrical). Lighting has been centred along roads and footpaths and avoids mature trees along the western boundary of the site. Further detail on operational lighting is included in **Section 11.3**. This will ensure that bat foraging habitat, is retained along the western and southern boundary of the site.

Overall, the impact of the proposed development will be negative, slight and long-term on local bat populations.

9.3.2 Otter

While Otters are known to use watercourses in the vicinity of Clonakilty town, there are no habitats of value for Otter within the proposed development site. There are no watercourses or wetland habitat on or in the immediate vicinity of the site. The closest watercourse is the River Fealge located c.160m south of the site. It is noted that surface water from the site will ultimately discharge into the River Fealge via the existing surface water infrastructure. However, a range of surface water control measures have been included in the project design to ensure there are no significant impacts on local water quality within the River Fealge.

The proposed development will result in an increase in noise and disturbance during the construction phase during daytime hours. However, given Otter's largely nocturnal habits, ability to move away from short-term disturbance and ability to habituate to anthropogenic noise and disturbance, the impact on Otter during construction will not be significant. The proposed development site is located within an urban edge/rural setting. During operation and occupancy of the dwellings, noise and disturbance is likely to increase. However, given the distance of the proposed from valuable Otter habitats no significant impact to local Otter populations is predicted to occur.

Overall, the impact of the proposed development on Otter is predicted to be neutral, imperceptible and long-term.

9.3.3 Other Mammals

Although the habitats to be directly affected may form part of the territories of mammal species such as Hedgehog and Pygmy Shrew, they are largely of low value and do not provide critical resources. Increased noise and disturbance are predicted to occur during construction and to a lesser degree during operation. The predicted noise level will not be excessive in the context of normal domestic and road traffic levels.

The proposed landscape planting, includes native tree planting and SuDS measures. As trees and shrubs mature these will provide shelter for small mammal species such as Hedgehog and Pygmy Shrew. Lighting has been designed to minimise impacts on nocturnal foraging mammals (See **Section 11.3**). The impact on other mammals is predicted to be negative, imperceptible and long-term at a local level.

9.3.4 Birds

The terrestrial bird species recorded within the proposed development site are typical of the terrestrial habitats onsite and are generally common. No rare or uncommon bird species or species of high conservation value were recorded or are likely to occur within the development boundary. The most valuable habitats at the site for birds is the treeline along the southern boundary which provides nesting habitat for birds, including a rookery. This habitat will be retained as part of the proposed development. There will be a loss of common bird foraging habitat within the proposed development site i.e., grassland. However, this habitat has low value for birds.

Some displacement of feeding birds may occur during construction due to increased noise and disturbance. Disturbance can cause sensitive species to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality. It is noted that operational lighting has been designed in line with wildlife lighting guidelines (in compliance with lighting requirements) to minimise impacts of operation lighting on local bird populations.

It is noted that the area in proximity to the proposed development is subject to disturbance from existing dwellings and roads and therefore any birds which utilise this area will have habituated to moderate levels of daytime disturbance. Given the availability of similar habitat in the surrounding area and the ability of birds to move away from disturbance, the impact on the feeding behaviour of these species is predicted to be slight. During the operational phase, the levels of activity will stabilise and birds in the surrounding landscape will be expected to habituate to any increased noise and disturbance levels. Landscape planting will provide some additional habitat at the site, where trees are currently absent. As trees and shrubs mature these will provide nesting and foraging habitats for common bird species. The impact on terrestrial birds, in habitats adjoining the proposed development site is therefore predicted to be negative, slight and long-term.

9.3.5 Other species

The proposed development area is only likely to support common invertebrate species. The use of native tree planting as well as pollinator friendly species will encourage invertebrate use of newly planted areas during the operational phase of the development. The proposed development area is only likely to support common invertebrate species. Therefore impacts on invertebrate populations will be neutral.

The River Feagle into which surface water runoff from the site will be discharged supports populations of Salmon, Trout and European Eel. Mitigation measures during construction will ensure there is no impact on water quality and/or fish and invertebrates which use these local watercourses. Given that the habitats which will be affected are relatively common in the surrounding landscape, any impact will be slight to not significant.

10. Potential impact on water quality

10.1 Surface Water Runoff

Potential impacts on aquatic habitats which can arise from surface water emissions associated with the construction phase of the proposed development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid and spillage of cement.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al*, 1993). However, any such spills, in the unlikely event of their occurrence, would be minor in the context of the available dilution within local watercourses and Clonakilty Bay.

High levels of silt can impact on fish species, in particular salmonids. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels and aquatic invertebrates may be smothered by excessive deposits of silt. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Significant impacts on fish stocks could impact on Otter due to a reduction in prey availability.

During construction there may be an increased probability of silt discharging from the proposed development site. In the absence of appropriate design and mitigation, high levels of silt in surface water run-off could theoretically arise. However, given the distance of the proposed development site from the River Feagle, the areas of treelines and grassland separating the river from the works area surface water runoff will be largely absorbed by

surrounding habitats and no significant impact on local watercourses is predicted to occur. However, as a precautionary measure several mitigation measures have been specified to ensure that water quality within the River Fealge is not impacted during construction works (**Section 14**). Therefore, there will be no significant impact on local surface water from the proposed development during the construction phase.

During operation, surface water drainage measures surface water runoff will be diverted to the existing surface water infrastructure at the Beechgrove Housing Estate as detailed in **Section 3.2** above. Prior to discharge to the existing Beechgrove network, the proposed surface water infrastructure includes a hydrobrake, attenuation, hydrocarbon interceptor and SuDS measures (tree pits, rain garden planters and water butts). Given the existing and proposed measures, no significant effect on local water quality from surface water runoff is predicted to occur. The impact on aquatic habitats is predicted to be minor in the short term and imperceptible in the long term.

10.2 Wastewater Discharges

The proposed housing development could potentially result in an increase in nutrients discharging to Clonakilty Bay via the Clonakilty and Environs Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth, which in turn could impact on feeding success for birds listed as qualifying interests for the Clonakilty Bay SAC and Clonakilty Bay SPA.

The Clonakilty and Environs agglomeration is served by a wastewater treatment plant with a Plant Capacity Population Equivalent (P.E.) of 20,500. The WWTP obtained a discharge licence (Reg: D0049-01) from the EPA and has assigned emission limit values (ELV's) for a range of parameters to ensure a high degree of protection to the Clonakilty Bay.

Treated effluent from the proposed development will discharge from the Clonakilty and Environs WWTP via the main treated effluent line. The discharge licence assigns ELV's for total phosphorous (Total P), chemical oxygen demand (COD), total suspended solids (TSS), biological oxygen demand (BOD), Ammonia, pH and orthophosphate. The ELVs are set based on the full design capacity (P.E. 20,500) and are aimed at providing a high degree of protection to the receiving water body and to ensure the receiving waterbody is capable of accommodating the proposed discharge without causing or exacerbating a breach in the relevant standards.

The 2021 Annual Environmental Report for Clonakilty and Environs WWTP (D0051-01) was reviewed **Table 13** provides a summary of the current operating conditions for the WWTP from the main effluent discharge obtained from the most recent Environmental Protection Agency Annual Environment Report (2021).

Table 13. Effluent Monitoring AER 2021

	Total P (mg/l)	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total N (mg/l)	pH	Ortho P (mg/l)
WWDL ELV (Schedule A1)	2.00	25	125	35	15	9	2
ELV with Condition 2 Interpretation	2.40	50	250	87.5	18	9	2.4
No. of Samples	12	12	12	12	12	15	12
No. of exceedances	3	2	1	1	3	n/a	n/a
Number of exceedances with Condition 2 Interpretation included	3	1	n/a	n/a	2	n/a	n/a
Overall Compliance	Fail	Fail	Pass	Pass	Fail	Pass	Pass

The AER notes that the final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2021. The noncompliance's with the ELVs were in relation to BOD, Nitrogen, Phosphorous. Investigations identified shock load discharges into the network, which resulted in non-compliance of the final effluent discharge.

In relation to ongoing monitoring of water quality, the 2021 AER concluded the following:

- The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.
- The ambient monitoring results do not meet the required EQS at the downstream monitoring location. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The discharge from the wastewater treatment plant does not have an observable impact on the water quality.
- A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.
- Other causes of deterioration in water quality in the area are: Catchment Pressures/Diffuse Urban
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

A pre-connection enquiry was submitted to Irish Water to assess the feasibility of providing a connection to the site. Subsequently, Irish Water issued a confirmation of feasibility for the development.

It is noted that the proposed occupancy of the housing development is approximately 95 persons. In 2021 the agglomeration PE for Clonakilty and Environs WWTP was 13,194 (AER 2022). The proposed development would increase the current WWTP P.E. from 13,194 to 13,289 which is well within the 20,500 P.E. design capacity. Thus, given the limited scale of

the proposed development and the ability of the WWTP to cater for the additional loading, no impact is expected.

The effluent discharge from the proposed housing development to the Clonakilty and Environs WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, the impacts from the proposed development will be negligible given the current operating conditions at the WWTP. Minor increases in nutrient levels potentially discharged by the WWTP will not have a significant impact water quality within the Clonakilty Bay and/or Clonakilty Bay SPA/SAC.

11. Mitigation Measures

The mitigation measures have been drawn up in line with current best practice and include an avoidance of sensitive habitats at the design stage. Whilst the proposed methods of mitigation may be amended and supplemented, the risk that the mitigation measures will not function effectively in preventing significant ecological impacts is low.

A Construction and Environmental Management Plan (CEMP) has been submitted with this application. This includes are mitigation measures relevant to the proposed development. Mitigation measures relevant to ecology are summarized below.

Construction best practice measures (of relevance in respect of any potential ecological impacts) will be implemented throughout the project, including the preparation and implementation of detailed method statements. The works will incorporate the relevant elements of the guidelines outlined below:

- NRA (2010) *Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads*. National Roads Authority, Dublin.
- Murphy, D. (2004) *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites*. Eastern Regional Fisheries Board, Dublin.
- H. Masters-Williams et al (2001) *Control of water pollution from construction sites. Guidance for consultants and contractors (C532)*. CIRIA.
- E. Murnane, A. Heap and A. Swain. (2006) *Control of water pollution from linear construction projects. Technical guidance (C648)*. CIRIA.
- E. Murnane et al., (2006) *Control of water pollution from linear construction projects. Site guide (C649)*. CIRIA.
- *Guidelines on protection of fisheries during construction Works in and adjacent to waters (IFI, 2016)*

All personnel involved with the project will receive an on-site induction relating to operations and the environmentally sensitive nature of local watercourses and waterbodies, to re-emphasise the precautions that are required as well as the mitigation to be implemented.

11.1 Water Protection Measures

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All run-off will be prevented from directly entering any water courses as no construction will be undertaken directly adjacent to open water.

No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept safe and relatively dry.

The measures outlined in the following sections will be put in place during the construction phase to ensure protection of surface waterbodies. Construction works will be informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects.

11.1.1 Suspended Solids

Prior to the commencement of topsoil stripping and earthworks operations, the following site-specific surface water management measures will be put in place:

- Where possible, significant earthworks operations should be limited to the summer months.
- Silt fencing will be installed around the perimeter of the site. The location of the silt fencing will be determined in the construction stage CEMP and will be subject to a detailed assessment of the area or phase to be developed. The purpose of the silt fencing is to prevent silt laden water leaving the site and entering neighbouring land with the potential to impact nearby watercourses. A typical silt fencing arrangement is shown below in **Figure 11**. It will consist of a double layer of geotextile membrane fixed to wooden stakes approximately 600mm high. The membrane will be anchored into the ground to form a continuous barrier to silt laden water from the works site. Silt fences will be monitored via a silt inspection log (to be maintained by the Environmental Manager/ECOW) and periodically maintained during the construction period. Typical maintenance will consist of repairs to damaged sections of membrane and removal of a build-up of silt on the upslope side of the fence. Daily silt fence inspections are recommended as part of their operation ensuring that any necessary repairs can be expedited.



Figure 11. Typical silt fence arraignment.

Drainage ditches will be installed to intercept surface water where there is a risk of significant water flow into excavations or onto adjoining lands. There will also be a requirement to periodically pump water from excavations. All collected and pumped water will have to be treated prior to discharge. The run-off will be directed through appropriately sized settlement ponds in series to remove suspended solids before being discharged.

- Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.
- Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.
- The Environmental Manager or ECoW will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.
- Any temporary storage of soil, hardcore, crushed concrete or similar material will be stored 50m from any surface water drains. All temporary storage areas should also have surface runoff controls in place to prevent migration of possible materials. There can be no direct pumping of silty water from the works directly to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement ponds, silt busters etc.

- The subject site is elevated and sloping to a degree that flooding is not anticipated in any event. The flood extent maps drawn up as part of the Southwestern CFRAM Study (floodinfo.ie) show that Clonakilty town is prone to flooding during fluvial and Tidal flood events, but this site is elevated enough and remote enough from the River Feagle that the site is not in any risk category in the CFRAM Study Maps.

11.1.2 Control of Cement Runoff

The washing out of concrete delivery vehicles is a potential source of pollution and shall be carried out in designated wash out areas only.

Wash-out areas on site will be located more than 50m from any natural watercourse and properly designed with an impermeable liner to contain all cement laden water. No wash-out of ready-mix concrete vehicles shall be located within 10m of any temporary or permanent drainage features. Signage shall be erected to clearly identify the wash-out areas. Sufficient wash-out areas shall be provided to cater for all vehicles at peak delivery times.

On-site batching of concrete is not envisaged, but ready to use mortar silos are often used for housing developments. These systems involve the delivery and storage of dry cement and aggregates in silos, water is added at the point of delivery to make mortar or plaster. The following controls shall be put in place for the on-site batching of concrete, mortar and render:

- The plant shall be maintained in good condition,
- Delivery of cement shall be means of a sealed system to prevent escape of cement,
- The plant shall be situated on a paved area at least 20m from any temporary or permanent drainage features,
- Emergency procedures shall be in place to deal with accidental spillages of cement or mortar.
- Accidental Leaks or Spills

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks may be kept in the material storage area in suitable containers and will be stored on appropriately banded spill pallets as required. Any fuel and oil stored on site shall be stored on banded spill pallets (approved under BS EN 1992-3:2006). All bunds will be impermeable and capable of retaining a volume of equal to or greater than 1.1 times (>110%) capacity of the containers stored on them. In the event of a spillage, excess oil or fuel will be collected in the bund.

Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken off site where possible. Where this is not possible, filling and maintenance will take place in a designated material storage compound, which is located at least 10 metres from any temporary or permanent drainage features. Spill protection equipment such as absorbent mats, socks and sand will be available in clearly marked bins/silos and in construction vehicles to be used in the event of an accidental release during refuelling. Training will be given to site workers in how to manage a spill event.

The following mitigation measures will be taken at the construction site to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible,
- Where mobile fuel bowsers are used the following measures will be taken:
 - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use,
 - Any pump or valve will be fitted with a lock and will be secured when not in use,
 - All bowsers to carry a spill kit and operatives must have spill response training; and
 - Portable generators or similar fuel containing equipment will be placed on suitable drip trays,
 - Weekly checks of spill kits will be carried out to ensure they are sufficiently stocked.

11.1.3 Monitoring

Daily checks will be carried out and recorded in a Surface Water Management Log to ensure surface water drains are not blocked by silt, or other items, and that all storage is located the required distance from surface water receptors. A daily log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

11.2 Noise

Specific noise abatement measures shall comply with the recommendations of BS5228-1 2009. These measures will include:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise,
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations,
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract,
- Compressors and generators will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers,
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use,
- Any plant, such as generators or pumps, required to operate outside of permitted working hours for lighting, pumping etc. will be surrounded by an acoustic enclosure or portable screen,

- Location of plant shall consider the likely noise propagation to nearby sensitive receptors.

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors, and generators. The noise levels shall comply with the mitigation measures and any planning conditions.

11.3 Lighting

11.3.1 Lighting During Construction

Lighting will be provided as necessary at construction compounds. Consideration of best practice and guidance in relation to lighting and wildlife impact such as *Bats & Lighting Guidance Notes for Planners, Engineers, Architects and Developers* (Bat conservation Ireland, December 2010); All lighting will be directional with appropriate cowling installed to minimise light spillage from the site. The height of lamp posts will be restricted (e.g., <8m where possible) to reduce the amount of light spillage to where it is not needed. All light fittings will be LED, have asymmetrical projection i.e. directional, and with colour temperature of 3000K (warm spectrum preferred by bats).

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required such as evening work during later winter/early spring, works on roadways and power floating floors. Where possible and without jeopardising site safety, lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. This lighting will also be controlled by occupancy/motion sensors so that it will remain at a low output unless activated. This will mitigate light overspill as well as avoiding energy wastage. Construction stage lighting will be designed to minimise the broadcast of light to surrounding areas including sensitive receptors.

11.3.2 Lighting During Operation

The lighting scheme has taken into account best practice, as published by the UK Bat Conservation Trust, in respect of mitigation strategies, to minimise the impact of outdoor lighting upon bat populations in line with Cork County Council Lighting requirements (See Outdoor Lighting Report Keillihier Electrical).

- LED type lanterns, of the Warm White type will be utilised where possible. Colour Temperature of 3,000 kelvin, as is considered least disruptive to the emergence of bats from roosts at dusk, and subsequent movement from habitats to foraging locations.
- Lanterns are of the fully cut off type with no light output above the horizontal plane.
- Height of columns kept as low as possible taking cognisance of need to make lanterns vandal resistant
- Maximum spacing between lighting

Lighting will be faced away from the retained boundary habitats to minimise the impact on bats foraging along these areas.

11.4 Ecology

All personnel involved with the project will receive an on-site induction relating to operations and the environmentally sensitive nature of retained habitats onsite as well as the hydrological connection to local waterbodies.

The Wildlife Amendment Act 2000 (S.46.1) provides that it is an offence to cut, grub, burn or destroy any vegetation on uncultivated land or such growing in any hedge or ditch from the first of March to the 31st of August. Exemptions include the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided. None the less it is recommended that vegetation be removed outside of the breeding season where possible. In particular, removal during the peak-breeding season (April-June inclusive) should be avoided. Such a timeframe would also minimise the potential disturbance of breeding birds outside of the proposed development site boundary.

A landscape plan has been developed by Forestbird Design which includes native tree planting, SuDS/damp meadow areas and native bulb planting. Proposed planting includes 131 no. new semi-mature and advanced trees. 124 trees are native, with 7 acclimatised Lime trees for climate change adaptability and pollinator benefits identified in the All-Ireland Pollinator Plan.

The majority of trees are located beyond the site boundary, yet have root zones that extend into the site. To ensure protection of these, fencing shall be installed as indicted on drawing L101 (Existing vegetation)

Protection fencing shall consist of 1.8m high panels (min. height), chainlink with galvanised posts, or similar material allowing sunshine and wind to filter through. To minimise root disturbance, fence footings shall be concrete or rubber blocks that sit on the surface and are not installed in the ground. The fencing shall not be moved, even temporarily, during construction and under no circumstances shall materials be stored under the tree canopies. The landscape architect or horticulturalist should be consulted prior to any proposed altera on to the protection fencing. Refer BS 5837 Code of Practice for Trees in Relation to Construction for best practice standards.

Tree Protection Fencing - construction Notes

1) The fencing shall be maintained in good and effective condition for the duration of construction activities. The fencing effectiveness and location will be reviewed by the Landscape Architect at each site visit.

2) The following measures shall also be adhered to:

- a- Materials are never to be stored within the canopy of the tree;

- b- No oil, tar, bitumen, cement or other deleterious material shall come in contact with the ground within the root zone; surface flow must also be considered as site gradients fall towards the trees;
- c- Trees to be retained shall neither be used as anchorages or support mechanisms for equipment, services or signage nor utilised any other construction activities;
- d- Soil levels are to be maintained as existing within the protection fencing. No excavation is allowed, even surface scratching. The majority of roots lie within the upper 500mm of the soil, so any alteration to soil levels within the root zone will result in a negative impact on the trees.

To prevent Japanese Knotweed or other invasive species from outside the site being inadvertently brought in to the site, the contractor will be required to inspect vehicles before using them on site. If applicable, the supplier of fill will be required to provide a guarantee that the fill to be imported does not contain knotweed. In addition, the fill will be inspected for signs of knotweed, prior to importation to site.

As noted above lighting mitigation measures have taken into account measures outlined in the *Bats & Lighting Guidance Notes for: Planners, engineers, architects and developers* (Bat Conservation Ireland, 2010).

During the site works, general mitigation measures for bats will follow the National Road Authority's '*Guidelines for the Treatment of Bats during the Construction of National Road Schemes*' NRA (2005c) and '*Bat mitigation guidelines for Ireland v2*'. Marnell *et al.* 2022). These documents outline the requirements that will be met in the pre-construction (site clearance) stage to minimise negative effects on roosting bats, or prevent avoidable effects resulting from significant alterations to the immediate landscape.

No bat roosts were recorded within trees earmarked for removal. However, the presence of occasional roosting bats in mature and semi-mature trees cannot be altogether ruled out. Although no trees suitable for roosting bats are earmarked for removal, as precaution the following measures should be implemented where crown reduction of mature/semi-mature trees is required. The following precautionary measures will be implemented.

- The bat specialist will work with the contractor to ensure that the loss of trees is minimised and that trees earmarked for retention are adequately protected.
- Tree-felling will be undertaken in the period September to late October/early November. During this period bats are capable of flight and may avoid the risks of tree-felling if proper measures are undertaken.
- Felled trees will not be mulched immediately. Such trees will be left lying several hours and preferably overnight before any further sawing or mulching. This will allow any bats within the tree to emerge and avoid accidental death. The bat specialist will be on-hand during felling operations to inspect felled trees for bats. If bats are seen or heard in a tree that has been felled, work will cease and the local NPWS Conservation Ranger will be contacted.
- Trees will be retained where possible and no 'tidying up' of dead wood and spilt limbs on tree specimens will be undertaken unless necessary for health and safety.

- Treelines earmarked for retention, but adjacent to tree removal areas and thus at risk, will be clearly marked by a bat specialist to avoid any inadvertent damage.

11.4 Biodiversity Enhancement

It is proposed that five bat boxes will be installed at the proposed development site i.e., Bat box pro or similar (<https://www.wildcare.co.uk/vincent-pro-bat-box-10651.html>). These bat boxes will be located within retained treelines along the eastern site boundary. These will be positioned at least 10m from any light fittings.

It is proposed that six bird nesting boxes (various types including open fronted, entrance hole and kestrel nest boxes e.g., <https://www.nhbs.com/kestrel-nest-box>) will be installed at the proposed development site. These will be located within retained treelines along the site boundary. These will be positioned at least 10m from any light fittings.

Five insect nesting boxes suitable for Hymenoptera spp. (bees and wasps) will be put in place adjacent to areas of perennial and herbaceous planting as a biodiversity enhancement measure.

Log piles will be installed to allow sites for small mammals such as Hedgehog and Pygmy Shrew. These will be situated along retained habitat and/or areas of newly planted shrub and groundcover.

12. Cumulative Impacts

Cumulative impacts refer to a series of individually modest impacts that may in combination produce a significant impact. Cumulative impacts on fauna chiefly relate to increased noise and activity levels and potential impacts on water quality. A review of the Cork County Council online planning records identified a number of permitted/proposed developments in the vicinity of the proposed development. Within the past 36 month period there has been one notable development granted planning in the vicinity:

Ref. 21488. Gaelscoil Mhichíl Uí Choileáin. Permission for the following proposed works: 1) construct a new two-storey extension with link adjoining north-facing elevation of existing main school building to provide 4 no. ensuite classrooms and ancillary accommodation; 2) alterations to existing car parking layout, to include additional car parking spaces and 6 no. new motorcycle parking bays and additional new covered bicycle stand; 3) extension of existing hard standing playground areas to the north-west of the site (basketball court) and associated works to existing and proposed fencing; 4) all associated site works and; 5) retention sought for existing hard standing parking area, including boundary wall and access steps as constructed, and permission sought for widening of the existing vehicle entrance serving subject parking area.

Works on this development are near completion and would not run concurrently with the proposed development. Small scale development of individual dwellings or alterations to existing dwellings in the vicinity will not cause significant cumulative disturbance effects. Therefore, no cumulative disturbance impacts during construction works have been identified.

The proposed development site is located on the western edge of Clonakilty town and is zoned residential by Cork County Development Plan 2022-2027. There are few remaining greenfield

or brownfield areas in the vicinity, therefore additional residential development in the vicinity is unlikely. To the west of the site, c. 718 ha of land have been zoned as a greenbelt. Therefore, future development in the immediate vicinity of the proposed development site is unlikely.

The Beechgrove Housing Development for 51 No. Social Houses and the conversion of Lower Tawnies Cottage & Outhouses into 6 No. Social Houses was granted planning permission in 2018 and completed in 2021. An ecological impact assessment accompanied the planning application for the Beechgrove Housing Development. The conclusions of this report were as follows:

This Ecological Impact Assessment has identified key ecological receptors within the zone of influence of the proposed development. Residual significant impacts will remain after mitigation has been applied with regards to bats, as there will be a net loss of commuting and foraging habitat. With regards to habitats, the proposed development will result in significant residual effects on 'mixed broadleaved woodland', 'scattered trees and parkland', 'treelines', 'hedgerows', and 'earth bank and stone walls' at a local level through unavoidable loss of area and/or degradation in habitat quality. Measures have been proposed for the protection of trees within the lands, in order to comply with policies protecting trees, while measures have also been proposed to reduce impacts of invasive species, and on bats and birds within the lands.

As noted in **Section 9.1** above, treeline habitats within the proposed development site boundary will be retained and retained trees within the Beechgrove Housing Estate will be protected to ensure there is no further impact on these habitats. Therefore, no cumulative effects from habitat loss will occur as a result of the proposed development. However, lighting impacts may further reduce the value of retained habitats and there will be slight cumulative impact on foraging and commuting routes for bats.

Should other projects run concurrently with the proposed development, there is potential for cumulative impacts on water quality. However, as noted above, there is limited potential for further development in proximity. The existing surface water infrastructure has the capacity to deal with the proposed development and no cumulative impacts from operational surface water runoff have been identified. No in-combination impacts from wastewater discharges have been identified.

Overall, no significant cumulative effects from the proposed development have been identified.

13. Conclusions

Overall, the development will impact on habitats of low local value. There will be a loss of grassland which have limited use as foraging grounds for common bird and mammal species. Trees are largely located outside the site boundary and will not be directly impacted. However, in the event that crown reduction is required, mitigation measures will be implemented during works to ensure there is no direct injury/mortality impacts on bats.

The increase in lighting along the site boundaries may reduce the value of retained habitats for local wildlife, in particular bats. However, operational lighting alongside additional landscape planting has been designed to reduce impacts on foraging bats

(and other nocturnal wildlife). Increased lighting is likely to have a slight impact on local bat populations, in line with emerging trends in this area of Clonakilty town.

During construction, there will be increased noise and disturbance which could potentially impact on birds and non-volant mammals. However, the impact will short term and will not be significant. Given the availability of alternative habitat in the vicinity, the impact on birds, non-volant mammals and other wildlife is likely to be slight and short-term.

No difficulties in the effective implementation of the prescribed mitigation measures have been identified. No impact from the spread of invasive species will occur. No significant impacts (SACs, SPAs or pNHAs) on designed sites will occur (in the absence of mitigation).

Following proposed landscaping at the proposed development site and within the landholding, which includes planting of native tree and shrub species, there will be a nett gain of trees and shrubs at the site. As trees and shrubs mature these will provide nesting and foraging habitats for common bird species and well as shelter for small mammal species.

References

CIRIA (2001). Control of water pollution from construction sites. E. Murnane, A. Heap, A. Swain (eds).

EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency.

EPA (2003) Advice notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency.

EPA (2015) Advice Notes for Preparing Environmental Impact Statements Draft September 2015

EPA (2015) Revised Guidelines on the Information to be Contained in Environmental Impact Statements (Environmental Protection Agency, draft September 2015);

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

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

Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods - a Manual of Techniques for Key UK Species*. RSPB: Sandy.

Heritage Council, 2011. Best Practice Guidance for Habitat Survey and Mapping

IEEM (2006) Guidelines for ecological impact assessment in the United Kingdom

JBA Consulting (2017). River Fealge (Clonakilty) Drainage Scheme: Final Addendum to Environmental Impact Statement

Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Kelly, J., O'Flynn, C., and Maguire, C. 2013. Risk analysis and prioritisation for invasive and non-native species in Ireland and Northern Ireland. A report prepared for the Northern Ireland Environment Agency and National Parks and Wildlife Service as part of Invasive Species Ireland.

NRA (2005a). Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes. National Road Authority.

NRA (2005c). Guidelines for treatment of bats during construction of National Road Schemes. National Road Authority

NRA (2008) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. National Road Authority

NRA (2009). Guidelines for assessment of ecological impacts of National Road Schemes. National Road Authority.

NRA. (2006b). Guidelines for the protection and preservation of trees, hedgerows and scrub prior to, during and post construction of national road schemes. National Roads Authority.

Reynolds, S.C.P. (2002) A catalogue of alien plants in Ireland. National Botanic Gardens. Glasnevin, Dublin.

Scott Cawley (2017). Ecological impact assessment proposed residential development Beechgrove, Clonakilty, Co. Cork

Webb, D.A., Parnell, J. & Doogue, D. (1996) An Irish flora. Seventh edition. Dundalgan Press (W. Tempest), Dundalk.

Wyse Jackson, Úna FitzPatrick, Edwina Cole, Matthew Jebb, Damian McFerran, Micheline Sheehy Skeffington & Mark Wright (2016) Ireland Red List No.10: Vascular Plants

Appendices

Appendix 1. NRA 2009 Guidelines

Table 1: Examples of valuation at different geographical scales

Ecological valuation: Examples
<p>International Importance:</p> <ul style="list-style-type: none"> • 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. • Proposed Special Protection Area (pSPA). • Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). • Features essential to maintaining the coherence of the Natura 2000 Network.⁴ • Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level)⁵ of the following: <ul style="list-style-type: none"> ○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man & The Biosphere Programme). • Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). <ul style="list-style-type: none"> • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). <ul style="list-style-type: none"> • Biogenetic Reserve under the Council of Europe. • European Diploma Site under the Council of Europe. • Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).⁶
<p>National Importance:</p> <ul style="list-style-type: none"> • Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park. • Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); • Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. • Resident or regularly occurring populations (assessed to be important at the national level)⁷ of the following: <ul style="list-style-type: none"> ○ Species protected under the Wildlife Acts; and/or ○ Species listed on the relevant Red Data list. • Site containing 'viable areas'⁸ of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity.⁹
- Area subject to a Tree Preservation Order.
- Area of High Amenity, or equivalent, designated under the County Development Plan.
- Resident or regularly occurring populations (assessed to be important at the County level)¹⁰ of the following:
 - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
 - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
 - Species protected under the Wildlife Acts; and/or
 - Species listed on the relevant Red Data list.
- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.
- County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, ¹¹ if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Local Importance (higher value):

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
- Resident or regularly occurring populations (assessed to be important at the Local level)¹² of the following:
 - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
 - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
 - Species protected under the Wildlife Acts; and/or
 - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

⁴ See Articles 3 and 10 of the Habitats Directive.

⁵ It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁶ Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

⁷ It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁸ A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

⁹ It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

¹⁰ It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

¹¹ BAP: Biodiversity Action Plan

¹² It is suggested that, in general, 1% of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle

