



ECOLOGICAL IMPACT ASSESSMENT REPORT

FOR

PROPOSED DEVELOPMENT

AT

LANDS AT GLENAMUCK ROAD
NORTH, CARRICKMINES, DUBLIN 18
(BOUNDED BY 'TULLYBEG' TO THE
NORTH, 'CHIGWELL' TO THE
NORTHEAST, 'STAFFORD LODGE'
TO THE SOUTH AND 'CARRICÁIL' TO
THE SOUTHEAST).

ON BEHALF OF

MORAN PARK HOMEBUILDERS
LIMITED

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1 INTRODUCTION

Enviroguide Consulting was commissioned by Brock McClure Planning Consultants, acting on behalf of Moran Park Homebuilders Limited, to undertake an Ecological Impact Assessment for a Proposed Residential Development at Lands at Glenamuck Road North, Carrickmines, Dublin 18 (bounded by 'Tullybeg' to the north, 'Chigwell' to the northeast, 'Stafford Lodge' to the south and 'Carricáil' to the southeast).

An Ecological Impact Assessment (EclA) assesses the potential effects of the Proposed Development on habitats and species; particularly those protected by national and international legislation or considered to be of particular nature conservation importance. This report will describe the ecology of the Site of the Proposed Development with emphasis on habitats, flora, and fauna, and will assesses the potential effects of both the Construction and Operational Phases of the Proposed Development on these ecological receptors. The report follows Guidelines for Ecological Impact Assessment in the UK and Ireland, by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

1.1 Quality assurance and competence

Synergy Environmental Ltd., T/A Enviroguide Consulting, is a wholly Irish Owned multi-disciplinary consultancy specialising in the areas of Environment, Waste Management and Planning. All consultants have scientific or technical qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training, and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide's staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. Liam Gaffney Senior Ecologist with Enviroguide undertook the on-site surveys, desktop research and report writing for this report.

Liam Gaffney has a M.Sc. Hons. (Wildlife Conservation and Management) and a B.Sc. Hons (Zoology) from University College Dublin, and a wealth of experience in desktop research, literature scoping-review, and report writing, as well as abundant practical field experience (Habitat surveys, Wintering bird surveys, large mammals, fresh water macro-invertebrates etc.). Liam is also a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

2 RELEVANT LEGISLATION

An Ecological Impact Assessment (EcIA) is a process of identifying, quantifying, and evaluating potential effects of development-related, or other actions, on habitats, species and ecosystems (CIEEM, 2016). The Proposed Development that is the focus of this report, is sub-threshold for an Environmental Impact Assessment (EIA) under Schedule 5, Part 2 10, (b) of the Planning and Development Regulations 2001 (as amended).

When an EcIA is undertaken as part of an EIA process it is subject to the EIA Regulations (under the EU Planning and Development [Environmental Impact Assessment] Regulations 2001-2018). An EcIA is not a statutory requirement, however it is a best practise evaluation process. This EcIA has been undertaken to support and assess the Proposed Development planning application and assesses the potential impact that the Proposed Development may have on the ecology of the site and its environs. Where a potential risk to the environment is identified, measures are proposed on the basis that by deploying such measures the risk is eliminated or reduced to an insignificant level. This EcIA is provided to assist the relevant Competent Authority with its decision making in respect of the Proposed Development.

2.1 National Legislation

2.1.1 *Wildlife Act 1976 and amendments*

The Wildlife Act 1976 was enacted to provide protection to birds, animals, and plants in Ireland and to control activities which may have an adverse impact on the conservation of wildlife. In regard to the listed species, it is an offence to disturb, injure or damage their breeding or resting place wherever these occur without an appropriate licence from National Parks and Wildlife Service (NPWS). This list includes all birds along with their nests and eggs. Intentional destruction of an active nest from the building stage up until the chicks have fledged is an offence. This includes the cutting of hedgerows from the 1st of March to the 31st of August.

The Act also provides a mechanism to give statutory protection to Natural Heritage Areas (NHAs) from the date they are proposed for designation i.e., at a time they become proposed Heritage Areas (pNHAs). The Wildlife Amendment Act 2000 widened the scope of the Act to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act.

2.1.2 *EU Habitats Directive 1992 and EC (Birds and Natural Habitats) Regulations 2011*

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) provides protection to particular species and habitats throughout Europe. The Habitats Directive has been transposed into Irish law through, inter alia, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Annex IV of the EU Habitats Directive provides protection to a number of listed species, wherever they occur. Under Regulation 23 of the Habitat Directive any person who, in regard to the listed species; “Deliberately captures or kills any specimen of these species in the wild, deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration, deliberately takes or destroys the eggs from the wild, or damages or destroys a breeding site or resting place of such an animal shall be guilty of an offence.”

2.1.3 Flora (Protection) Order, 2015

The Flora (Protection) Order (S.I. No. 356/2015) affords protection to several species of plant in Ireland, including 68 vascular plants, 40 mosses, 25 liverworts, 1 stonewort and 1 lichen. This Act makes it illegal for anyone to uproot, cut or damage any of the listed plant species and it also forbids anyone from altering, interfering, or damaging their habitats. This protection is not confined to within designated conservation sites and applies wherever the plants are found.

2.1.4 Invasive Species Legislation

Certain plant species and their hybrids are listed as Invasive Alien Plant Species in Part 1 of the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations* 2011 (SI 477 of 2011, as amended). In addition, soils and other material containing such invasive plant material, are classified in Part 3 of the Third Schedule as vector materials and are subject to the same strict legal controls.

Failure to comply with the legal requirements set down in this legislation can result in either civil or criminal prosecution, or both, with very severe penalties accruing. Convicted parties under the Act can be fined up to €500,000.00, jailed for up to 3 years, or both.

Extracts from the relevant sections of the regulations are reproduced below.

“49(2) Save in accordance with a licence granted [by the Department of Arts, Heritage and the Gaeltacht], any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in anyplace [a restricted non-native plant], shall be guilty of an offence.

49(3) ... it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.

50(1) Save in accordance with a licence, a person shall be guilty of an offence if he or she [...] offers or exposes for sale, transportation, distribution, introduction, or release—

- (a) an animal or plant listed in Part 1 or Part 2 of the Third Schedule,*
- (b) anything from which an animal or plant referred to in subparagraph (a) can be reproduced or propagated, or*
- (c) a vector material listed in the Third Schedule, in any place in the State specified in the third column of the Third Schedule in relation to such an animal, plant or vector material.”*

2.2 International Legislation

2.2.1 EU Birds Directive

The Birds Directive provides a level of general protection for all wild birds throughout the European Union. Annex I of the Birds Directive includes a total of 194 bird species that are considered rare, vulnerable to habitat changes or in danger of extinction within the European Union. Article 4 establishes that there should be a sustainable management of hunting of listed species, and that any large scale non-selective killing of birds must be outlawed. The Directive requires the designation of Special Protection Areas (SPAs) for: listed and rare species, regularly occurring migratory species and for wetlands which attract large numbers

of birds. There are 25 Annex I species that regularly occur in Ireland and a total of 154 Special Protection Areas have been designated.

2.2.2 EU Habitats Directive

The Habitats Directive aims to protect 220 habitats and approx. 1000 species through-out Europe. The habitats and species are listed in the Directives annexes where Annex I covers habitats and Annex II, IV and V cover species. There are 59 Annex I habitats in Ireland and 33 Annex IV species which require strict protection wherever they occur. The Directive requires the designation of Special Areas of Conservation for areas of habitat deemed to be of European interest. The SACs together with the SPAs from the Birds Directive form a network of protected sites called Natura 2000.

2.2.3 Water Framework Directive

The EU Water Framework Directive (WFD) 2000/60/EC is an important piece of environmental legislation which aims to protect and improve water quality. It applies to rivers, lakes, groundwater, estuaries, and coastal waters. The Water Framework Directive was agreed by all individual EU member states in 2000, and its first cycle ran from 2009 – 2015. The Directive runs in 6-year cycles, so the second (current) cycle runs from 2016 – 2021. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high water quality status where it exists. The WFD requires member states to manage their water resources on an integrated basis to achieve at least 'good' ecological status, through River Basin Management Plans (RBMP), by 2027.

2.2.4 Bern and Bonn Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982) was enacted to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was introduced in order to give protection to migratory species across borders in Europe.

2.2.5 Ramsar Convention

The Ramsar Convention on Wetlands is an intergovernmental treaty signed in Ramsar, Iran, in 1971. The treaty is a commitment for national action and international cooperation for the conservation of wetlands and their resources. In Ireland there are currently 45 Ramsar sites which cover a total area of 66,994ha.

3 METHODOLOGY

This section details the steps and methodology employed to undertake an Ecological Impact Assessment of the Proposed Development. The proposed methodology will provide a robust and detailed assessment of the potential impacts on the ecology of the Site likely to occur as a result of the Proposed Development. Appropriate mitigation measures will then be recommended where deemed necessary, to negate and minimise to negligible any predicted impacts.

3.1 Scope of assessment

The specific objectives of the study were to:

- Undertake baseline ecological surveys and evaluate the nature conservation importance of the Site of the Proposed Development.
- Identify and assess the direct, indirect, and cumulative ecological implications or impacts of the Proposed Development during its lifetime.
- Where possible, propose measures to remove or reduce those impacts at the appropriate stage of the development.

3.2 Desk study

A desktop study was carried out to collate and review available information, datasets and documentation sources pertaining to the site's natural environment. The desk study, completed March 2022, relied on the following sources:

- Information on species records¹ and distributions, obtained from the National Biodiversity Data Centre (NBDC) at maps.biodiversityireland.ie
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at gis.epa.ie
- Information on bedrock, groundwater, aquifers and their status, obtained from Geological Survey Ireland (GSI) at www.gsi.ie
- Information on the network designated conservation sites, site boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland
- Information on the existence of permitted development, or developments awaiting decision, in the vicinity of the Proposed Development from the National Planning Applications Database (NPAD) available to view through MyPlan.ie, and Dún

¹ The Site of the Proposed Development lies within the 10km grid square O03 and the 2km grid square O03Q. Records from the last 30 years from available datasets are given in the relevant sections of this report.

Laoghaire Rathdown Online Planning Search, available at <https://dlrcocouncil.maps.arcgis.com/apps/webappviewer/index.html?id=af21eeb123224c4c877f410139ed1e69>.

- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team.
- Information on the construction methods to be followed as part of the Proposed Development, taken from the Preliminary Construction Management Plan (PCMP) prepared by Waterman Moylan Engineering Consultants and submitted with this application.
- The current conservation status of birds in Ireland taken from Gilbert, Stanbury & Lewis (2021).

A comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 10, References.

3.3 Field Surveys

3.3.1 Habitat and Invasive flora Surveys

Habitat and Invasive Flora surveys of the Site of the Proposed Development were conducted by Enviroguide on the 18th of February 2022. Habitats were categorised according to the Heritage Council's '*A Guide to Habitats in Ireland*' (Fossitt, 2000) to level 3. The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2010) published by the Heritage Council. Habitats within the surrounding area of the Proposed Development were classified based on views from the Site and satellite imagery where necessary (Google Earth, Digital Globe and OSI).

No Invasive Flora species listed in Part 1 of the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations* 2011 (SI 477 of 2011, as amended) were recorded onsite.

3.3.2 Bat Surveys

A preliminary bat roost potential survey was carried out in relation to the Proposed Development on 18th of February 2022 by Liam Gaffney. The Site contains little to no tree cover and no structures such as buildings exist onsite. The Site was walked and assessed for any potential bat roosts and foraging/commuting habitat, to aid in the impact assessment of the Proposed Development with regard to bats.

Treelines and hedgerows along the boundaries of the Site were inspected and assessed for the following features which could provide suitable roosting habitat for bats:

- Natural holes (e.g., knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar.
- Man-made holes (e.g., cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems).
- Cracks/splits in stems or branches (horizontal and vertical).
- Partially detached or loose bark plates.

- Cankers (caused by localised bark death) in which cavities have developed.
- Other hollows or cavities, including butt rots.
- Compression of forks with included bark, forming potential cavities.
- Crossing stems or branches with suitable roosting space between.
- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk).
- Bat or bird boxes.
- Other suitable places of rest or shelter.

Due to seasonal time constraints a bat activity survey was not carried out at the Site.

3.3.3 Bird Surveys

A bird survey was completed at the Site of the Proposed Development on 18th of February 2022. The survey methodology followed the British Trust for Ornithology's (BTO) *Common Bird Census* (CBS) technique (Bibby *et al*, 1992). The site was walked with particular focus given to hedgerows and treelines that run along the Site's boundaries. All bird species encountered were recorded on field sheets, with location (on 1:500 field maps), behaviour and numbers, noted.

3.3.4 Mammal Surveys

Mammal surveys of the Site were carried out in conjunction with the other field surveys. The Site was searched for tracks, scat and other signs of mammals. The habitat types recorded throughout the survey area were used to assist in identifying the fauna considered likely to utilise the area. During this survey, the Site was searched for tracks and signs of mammals as per Bang and Dahlstrom (2001).

3.3.5 Other Fauna

During the course of site surveys other species of fauna were noted when found to be present, and these are included in the report where applicable.

3.4 Assessment

The value of the ecological resources, i.e., the habitats and species present or potentially present, was determined using the ecological evaluation guidance given in the National Roads Authority's Ecological Assessment Guidelines (NRA, 2009), presented in Appendix I. This evaluation scheme, with values ranging from locally important to internationally important, seeks to provide value ratings for habitats and species present that are considered ecological receptors of impacts that may ensue from a proposal. Any habitats or species evaluated as being of Local Importance (higher value) or greater and considered to be at risk of significant effects as a result of the Proposed Development, are selected as potential key ecological receptors (KERs) and assessed further.

The assessment of the potential effect or impact of the Proposed Development on the identified key ecological receptors was carried out with regard to the criteria outlined in the draft

EPA Guidelines (EPA, 2017), presented in Appendix II. These guidelines set out a number of parameters such as quality, magnitude, extent and duration that should be considered when determining which elements of the Proposed Development could constitute impact or sources of impacts.

3.5 Limitations

An extensive search of available datasets for records of rare and protected species within proximity of the Site of the Proposed Development has been undertaken as part of this assessment. However, the records from these datasets do not constitute a complete species list. The absence of species from these datasets does not necessarily confirm an absence of species in the area.

In addition, it is noted that due to seasonal constraints associated with the timing of Enviroguide joining this project, the bird survey was conducted outside of the optimal survey period for breeding birds, and just prior to the beginning of the nesting season i.e., March 1st. Based on the Site's location in an sub-urban area and the nature and quality of the habitats currently present on site i.e., largely rank grassland, and recolonising bare ground habitats with a lack of tree cover at the Site; it is not considered that any bird species of note would utilise the Site in significant numbers. There are also no structures suitable for nesting summer migrant species such as Swallow and House martin at the Site, and the majority of boundary vegetation is being retained as part of the Proposed Development. In addition, for the reasons detailed in section 6.5.3 below, there is no significant risk of bird-building collisions involving the Proposed Development. Therefore, it is deemed that once the mitigation measures in terms of the timing of vegetation clearance at the Site are adhered to, there will be no significant impacts to any bird species as a result of the Proposed Development.

Similarly, a bat activity survey was not conducted at the Site due to seasonal timing constraints. A preliminary bat roost survey conducted at the Site in February 2022 revealed no potential roosting habitat at the Site, and although it is deemed that the Site would not provide high value foraging /commuting habitat to bats based on the habitats currently present; this cannot be confirmed without an activity survey conducted during the optimum period. Nevertheless, in taking a precautionary approach a suite of mitigation measures are recommended in terms of bat-friendly lighting and new roosting habitat; to minimise any potential for impacts to bats should they utilise the Site.

4 BASELINE ECOLOGICAL CONDITIONS

4.1 Site Overview

The site is located in the administrative area of Dun Laoghaire-Rathdown County Council. The total site is c. 1.06ha (c. 0.74ha being development area and c. 0.32ha relates to additional lands for drainage and access proposals) at Glenamuck Road North, Carrickmines, Dublin 18 (bounded by 'Tullybeg' to the north, 'Chigwell' to the northeast, 'Stafford Lodge' to the south and 'Carricáil' to the southeast).

4.1.1 Geology

The Site is underlain by the *Type 2e equigranular (Northern and Upper Liffey Valley Plutons)* bedrock formation, comprising of *Pale grey fine to coarse-grained granite* (GSI, 2022). The groundwater rock units underlying the area are classified as *Granites & other Igneous Intrusive rocks* (GSI, 2022). The quaternary sediments are described by the GSI as *Till derived from limestones (TLs)*, and the sub-soil at the Site of the Proposed Development is classified as *Man made* (EPA, 2022).

4.1.2 Hydrogeology

The Site and the surrounding area are located within the *Wicklow* groundwater body, which has an overall Water Framework (WFD) status of *Good* according to the EPA. The Site of the Proposed Development is located on a *Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones (PI)*, with groundwater vulnerability in the area listed as *High* (GSI, 2022).

4.1.3 Hydrology

The Site of the Proposed Development is located within the Avoca-Vartry river catchment, the Dargle River sub catchment (*Dargle_SC_010*) and the Carrickmines stream sub basin (*CARRICKMINES STREAM_010*) (EPA, 2022).

There are no waterbodies located within the Site of the Proposed Development. The nearest watercourse is the Carrickmines Stream (EPA Code: 10C04), which flows due east ca.330m to the east of the Site. The Carrickmines Stream flows approximately 4.km from its nearest point to the Site, before outflowing as the Shanganagh River into Killiney Bay. The Carrickmines Stream is cited as 'Moderate' and 'At Risk' under the Water Framework Directive (EPA, 2022). The nearest EPA monitoring station is located on the Carrickmines Stream as it crosses the N11 dual carriageway ca.200m south of the Site. This station (station code: RS10C040200) reports a Q-value of 3, *Poor*. Further downstream along the Carrickmines river water quality improves to Q-value 3-4, *Moderate* (station code:RS10C040300) and Q-value 4, *Good* (station code:RS10C040350) (EPA, 2022).

4.2 Designated Sites

The methodology used to identify relevant designated sites comprised the following:

- Use of up-to-date GIS spatial datasets for European and nationally designated sites and water catchments – downloaded from the NPWS website (www.npws.ie) and the

EPA website (www.epa.ie) to identify designated sites which could potentially be affected by the Proposed Development;

- The catchment data were used to establish or discount potential hydrological connectivity between the Project Boundary and any designated sites.
- All designated sites within an initial precautionary zone of influence (European Sites within 15km of the Proposed Development Site, and nationally designated sites within 5km) were identified and are presented in Figure 1 & Figure 2 below.
- The potential for connectivity with designated sites at distances outside of these precautionary zones was also considered in this initial assessment. In this case, there is no potential connectivity between the Proposed Development Site and designated sites located beyond these distances.
- Table 1 below provides details of all relevant designated sites as identified in the preceding steps. The potential for pathways between designated sites and the Proposed Development Site was assessed on a case-by-case basis using the Source-Pathway-Receptor framework. Those designated sites where a pathway was identified are highlighted in green. Pathways considered included:
 - Direct pathways e.g., proximity, water bodies, air (for both air and noise emissions).
 - Indirect pathways e.g., disruption to migratory paths, 'Sightlines' where noisy or intrusive activities may result in disturbance to shy species, increased human activity etc.
- The site synopses of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- The distances to each site listed are taken from the nearest possible point of the Proposed Development Site boundary to nearest possible point of each European site or pNHA

4.2.1 European Sites

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) provides protection to particular species and habitats throughout Europe. The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011. The Directive requires the designation of Special Areas of Conservation (SACs) for areas of habitat deemed to be of European interest, and the designation of Special Protection Areas (SPAs) for: listed and rare species, regularly occurring migratory species, and for wetlands which attract large numbers of birds. The SACs together with the SPAs form a network of protected sites called Natura 2000.

No European Sites are located within, or directly adjacent to, the Site of the Proposed Development. The nearest European Sites to the Proposed Development are the South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA; both located ca.4.5km to the north. As detailed in the Appropriate Assessment Screening Report for this Proposed Development, submitted with this application under separate cover, the Proposed Development maintains

no significant impact pathway with this SAC or any other European Site and likely significant impacts are therefore not envisaged.

4.2.2 Nationally Designated Sites

Natural Heritage Areas (NHAs) are areas considered important at a national level for the habitats present, or which hold species of plants and animals whose habitat needs protection. Proposed NHAs (pNHAs) are areas which were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. These sites are deemed to be of significance for wildlife and habitats. Some pNHAs occupy a relatively small area, such as a roosting place for rare bats, while others are relatively large e.g., a woodland or a lake. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation.

No NHAs are located within, or directly adjacent to, the Site of the Proposed Development. The nearest pNHA to the Proposed Development is the Dingle Glen pNHA located ca. 1.6 km to the south. The Proposed Development maintains no potential impact pathway with this pNHA, hydrological or otherwise.

The Proposed Development maintains an indirect hydrological impact pathway with the Loughlinstown Wood pNHA via the Carrickmines Stream, which passes through the pNHA as the Shanganagh River 2.3km to the east of the Site.

There are two indirect impact pathways connecting the Proposed Development and the Dalkey Coastal Zone and Killiney Hill pNHA, one via the receiving surface water drainage network which outflows into Killiney Bay via the Shanganagh River; and the other via discharges from Shanganagh-Bray waste-water treatment plant which will receive foul water flows generated by the Proposed Development.

Table 1. Proposed Natural Heritage Areas located within the precautionary 5km ZOI of the Proposed Development. Sites with identified Source-Pathway-Receptor impact linkage are highlighted in green

Site Name & Code (Receptor)	Distance to Proposed Development	Potential Pathway to receptors
Proposed Natural Heritage Area		
Dalkey Coastal Zone And Killiney Hill (001206)	3.1 km	Indirect pathways via surface water to Carrickmines Stream and foul water treatment at Shanganagh WWTP.
Loughlinstown Woods (001211)	2.3 km	Indirect pathway via surface water to Carrickmines Stream.
Dingle Glen (001207)	1.6 km	None – No Impact pathway between the Site and these pNHAs. No hydrological connectivity exists.
Ballybetagh Bog (001202)	3.9 km	

Site Name & Code (Receptor)			Distance to Proposed Development	Potential Pathway to receptors
Fitzsimon's (001753)	Wood		4.0 km	
South Dublin Bay (000210)			4.6 km	

Loughlinstown Wood pNHA (01211)

The pNHA site synopsis for Loughlinstown Wood (NPWS, 2009) provides a description of the ecology and threats affecting this site.

“This site is located about 4km north of Bray, on the east side of the main Dublin-Bray road. It is on the north bank of the Shanganagh River at Loughlinstown.

The wood was originally planted but following substantial regeneration, has produced woodland of natural character in age structure and form. The western end retains a high canopy of Beech (Fagus sylvatica), Sycamore (Acer pseudoplatanus) and some elm (Ulmus spp.), with Holly (Ilex aquifolium) and Cherry Laurel (Prunus laurocerasus) below. There is little regeneration in this part of the wood. There is a gradation into a dense thicket of bramble (Rubus spp.), and trees such as Ash (Fraxinus excelsior), Blackthorn (Prunus spinosa) and Hazel (Corylus avellana) occur here. A stand of Gorse (Ulex europaeus) occurs at the eastern end of the site.

The valley floor has much Alder (Alnus glutinosa) and some willows (Salix spp.). The introduced Giant Hogweed (Heracleum mantegazzianum) has spread along the banks of the river.

The site is used for amenity purposes, with signposting and information leaflets available. Dumping and littering is a problem within the site.

This site is a good example of demesne-type mixed woodland. It is now used chiefly for amenity purposes.”

Dalkey Coastal Zone and Killiney Hill pNHA (001206)

The pNHA site synopsis (NPWS, 2009) provides a description of the ecology and overall interest of this site.

“This site includes the coastal stretch from Scotman's Bay to south of White Rock, the Dalkey Island group and Dalkey Sound, and Killiney Hill. Killiney Hill is at the edge of the Wicklow mountain intrusion and so it is formed of a mixture of granite and mica schist. It provides one of the best exposed junctions of these rock types, on the beach at White Rock, at which mineralisation has taken place due to contact metamorphism. The minerals include biotite, andalusite and garnet, with aplite and pegmatite veins also exposed. The seaward parts of Killiney Hill have in addition a covering of calcareous glacial drift. The rocky shore is mainly of granite.

Dalkey Sound and its environs have been highly regarded as a valuable marine collecting area for many years. The Sound is especially noteworthy for the occurrence of west and south coast invertebrates. Species taken include squat lobsters (Galathea spp.), swimming crabs

(*Portunus* spp.) and the crawfish *Palinurus vulgaris*. The area is also noted for the occurrence of gymnoblastic hydroids, with the rare *Antedon bifida* being taken regularly. Some rare European species which occur are members of the Order Nudibranchia and the Spiny Starfish (*Marthasterias glacialis*).

Dalkey Island lies c. 400m off Sorrento Point. The island is low-lying, the highest point at c.15m is dominated by a Martello Tower. Soil cover consists mainly of a thin peaty layer, though in a few places there are boulder clay deposits. Vegetation cover is low, consisting mainly of grasses. No woody plants have become established, probably due to constant grazing by goats. Dense patches of bracken (*Pteridium aquilinum*) and Hogweed (*Heracleum sphondylium*) occur in places.

Lamb Island lies to the north of Dalkey Island, attached at low-tide by a line of rocks. It has a thin soil cover and some vegetation, mainly grasses, Common Nettle (*Urtica dioica*) and Hogweed. Further north lies Maiden Rock, a bare angular granite rock up to 5m high. There is no vegetation cover. Muglins, a small granite rock, lies about 1km north-east of Dalkey Island. A small lighthouse is on the rock.

Herring Gulls nest on Dalkey Island (17 pairs in 1986), Lamb Island (29 pairs in 1986) and Muglins (207 nests in 1982). Great Black-backed Gull nests on Dalkey Island (maximum 62 nests in 1982-88), and two pairs of Lesser Black-backed Gull nested there in 1981.

Common Terns breed annually on Maiden Rock, with a maximum of 54 nests between 1980 and 1986. One pair of Arctic Tern bred on Maiden Rock in several years and in 1986 two pairs of Roseate Terns nested but were unsuccessful. Manx Shearwater is suspected of breeding on Dalkey Island.

Shelduck, Mallard and Oystercatcher nest on Dalkey and Lamb Island. Meadow and Rock Pipits breed on Dalkey Island. Maiden Rock is an important autumn roosting site for up to 2,000 terns, including Roseates from the Rockabill colony. In autumn and winter Dalkey Island is an evening roosting site for Cormorants, Shags, Curlew and large gulls. Up to 50 Turnstones and 15 Purple Sandpipers occur in winter.

Killiney Hill is a complex of coastal heath and mixed woodland. The woods are mostly planted and include Sycamore (*Acer pseudoplatanus*), Horse Chestnut (*Aesculus hippocastanum*), some oak (*Quercus* spp.), Ash (*Fraxinus excelsior*) and Holly (*Ilex aquifolium*). The ground flora is mainly Ivy (*Hedera helix*) and bramble (*Rubus* spp.) but there are some areas with more typical woodland species such as Wood-sorrel (*Oxalis acetosella*) and Herb-Robert (*Geranium robertianum*).

Many of the rock surfaces on the open and bushy areas on the east side of the summit of the hill are roches moutonnées while near the summit spodumene is found in a small scarp exposure. This results in an interesting flora, with Wood Vetch (*Vicia sylvatica*), Climbing Corydalis (*Corydalis claviculata*) and Wild Madder (*Rubia peregrina*) growing amongst the Gorse (*Ulex europaeus*). The shallow soils overlying the rock support a community of winter annuals and early flowering perennials such as Spring Squill (*Scilla verna*) and Wild Onion (*Allium vineale*).

The drift banks above and below the railway have warm shallow soils. Here grow scarce plants such as Bloody Crane's-bill (*Geranium sanguineum*), Bee Orchid (*Ophrys apifera*), Sea Stork's-bill (*Erodium maritimum*) and clovers (*Trifolium ornithopodioides*, *T. striatum* and *T. scabrum*). The naturalised Silver Ragwort (*Senecio cineraria*) is widespread.

Up to five pairs of Fulmar breed on the cliffs below the railway line. Kestrel breeds in the area, as well as Stonechat.

This site represents a fine example of a coastal system with habitats ranging from the sub-littoral to coastal heath. The flora is well developed and includes some scarce species. The islands are important bird sites. The site also has geological importance.”

Loughlinstown Woods pNHA, located ca.2.3km to the east of the Site, is designated for its woodland habitats and its value as an educational amenity. Dalkey Coastal Zone and Killiney Hill pNHA lies at its closest ca.3.1km to the east of the Proposed Development, running down along the east coast to Shanganagh. This pNHA is designated as a pNHA due to the range of coastal habitats it supports, from sub-littoral to coastal heath, with several Islands supporting various colonies of bird species (NPWS, 2009). This section of the east coast is also of geological interest and supports various scarce plant species.

It is considered extremely unlikely that any surface waters generated by the construction or operation of the Proposed Development will have the potential to cause any significant effects at these pNHAs, which are largely designated for woodland and coastal cliff habitats respectively.

A suite of SUDS is also included in the project design as per the requirements of DLRCC and the GDSDS, which through a series of interception and attenuation features will ensure that operational surface waters from the Site will have been sufficiently treated prior to discharge to the stream.

It is therefore deemed that there is no possibility for significant impacts at any pNHA sites, or any other adverse impact, as a result of the Proposed Development, and therefore, neither pNHA is considered a Key Ecological Receptor (KER) for the purposes of this assessment.

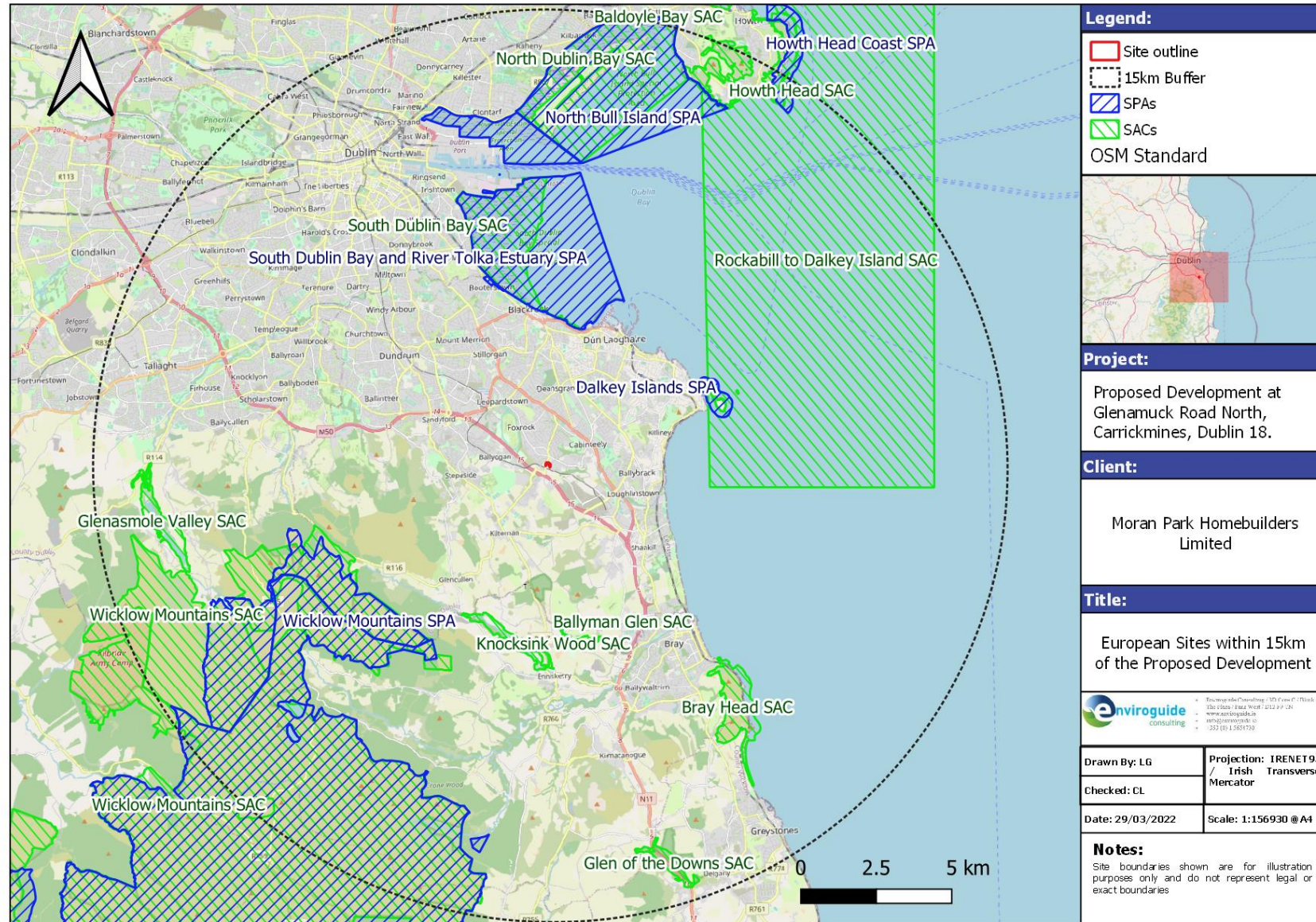


Figure 1. European Sites within 15km of the Proposed Development.

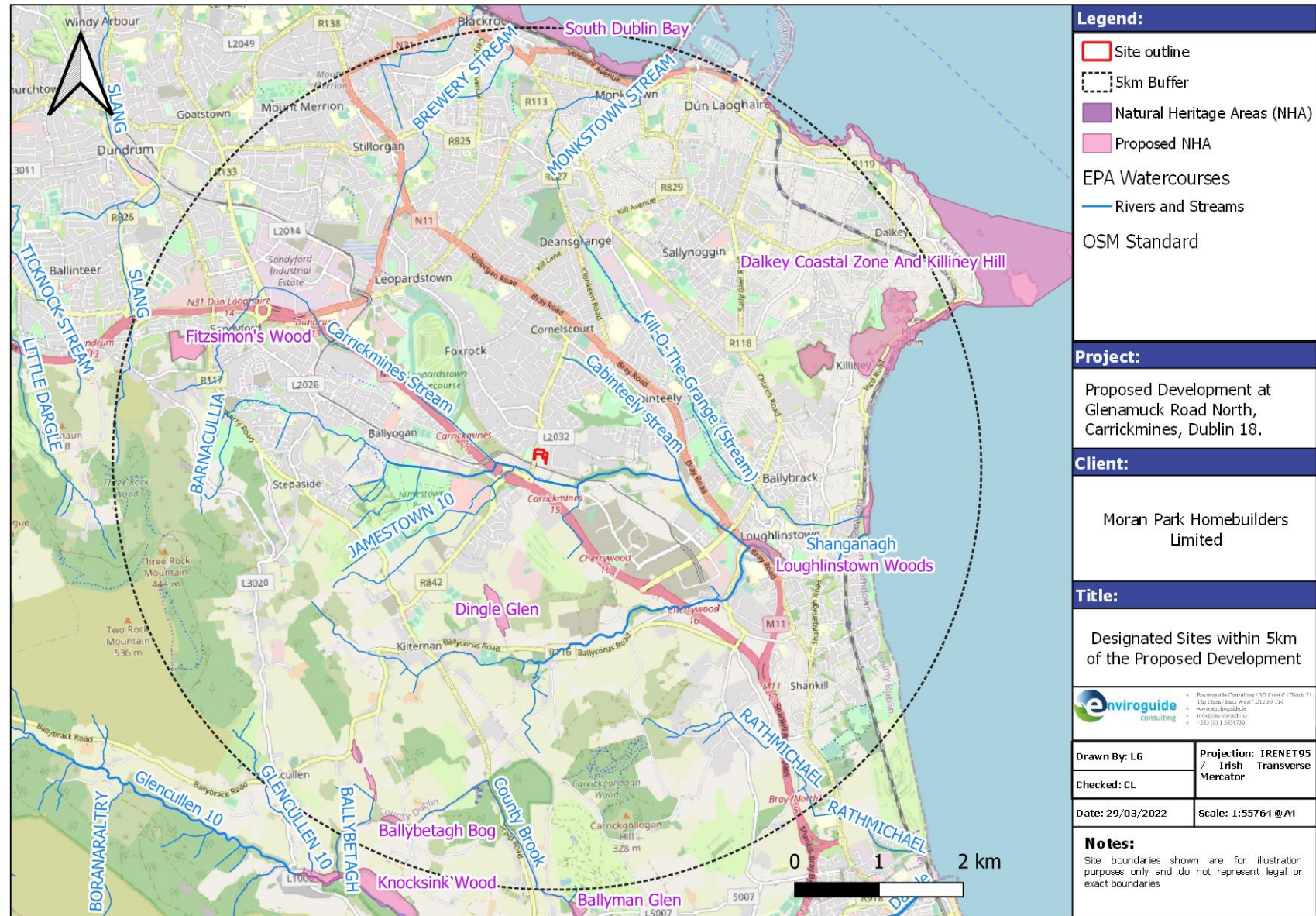


Figure 2. Designated Sites within 5km of the Site of the Proposed Development.

4.3 Habitats

The habitats within the vicinity of the Site of the Proposed Development are coded and categorised to level 3 according to Fossitt (2000). The following habitats were identified within the redline boundary of the Site:

- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Recolonising Ground (ED3)
- Dry Meadows (GS2)
- Scrub (WS1)
- Hedgerows (WL1)
- Treelines (WL2)

4.3.1 Buildings and Artificial Surfaces (BL3)

The Site redline boundary includes a section of tarmacadam roadway to its west. This surface is modern, supports no vegetation and is of no ecological value.

4.3.2 Spoil and Bare Ground (ED2)

This disturbed habitat type covers a section of the Site that crosses through adjacent lands to the south, following the route of the proposed sewer line; where land has been cleared in the past. This habitat, due to its disturbed and anthropogenic nature, supports little to no vegetation and will transition to ED3 recolonising bare ground habitat with time, as pioneer plant species take hold. This habitat is of no ecological value.



Figure 3. Example of the ED2 habitat present onsite (Image taken at centre of Site facing east)

4.3.3 Recolonising Ground (ED3)

This habitat type covers an access track running west-east in the centre of the Site, and an area of ground cleared in the north-east and central portion of the Site. This habitat supports

limited vegetation with pioneer species present. Species include Ribwort Plantain *Plantago lanceolata*, Creeping thistle *Cirsium arvense*, Dandelion *Taraxacum vulgaria*, Creeping Bent *Agrostis stolonifera* and a Echium species *Echium sp.* This habitat is a common occurrence where land disturbed through clearance, or areas of neglected hardstanding, begin to recolonise over time. It supports limited flora and as such, it is of little to no ecological value.



Figure 4. Recolonising ground (ED3) habitat in the west of the Site. GS2 habitat can be seen in the background (Image taken facing north-east).

4.3.4 Dry Meadows (GS2)

This habitat type is present as rank, tussocky grassland located in the west of the Site. Common species recorded include Yorkshire Fog *Holcus lanatus*, Creeping Buttercup *Ranunculus repens*, Broad-leaved Dock *Rumex obtusifolius*, Cocksfoot *Dactylis glomerata*, Ribwort plantain, Bush vetch *Vicia sepium*, with occasional Spear thistle *Cirsium vulgare*, Hogweed *Hieracium sphondylium* and Teasel *Dipsacus fullonum*. This habitat is common in unmaintained grassy areas and considered of local importance (Lower value) at the Site scale.

4.3.5 Scrub (WS1)

Small areas of bramble scrub are present in the north-western corner of the Site and in the centre; where GS2 grassland habitat has developed occasional bramble thickets. These areas are limited at the Site and considered of local importance (Lower value) at the Site scale.



Figure 5. Scrub (WS1) habitat present at the Site.

4.3.6 Hedgerows (WL1) and Treelines (WL2)

All hedgerows and treelines at the Site are located along the boundaries with adjacent private properties and are largely planted and are part of these private gardens. Sections of hedgerow run along parts of the northern and southern central margins of the Site and comprise of ornamental non-native species such as New Zealand broadleaf *Griselinia littoralis* along the northern boundary and mixed ornamental hedging including Cherry Laurel *Prunus laurocerasus*, along the south central boundary. Trees present along the eastern boundaries include immature Beech *Fagus sylvatica* and Rowan *Sorbus Acuparia*.

These habitats are deemed of **local importance (Lower value)** due to their largely planted, non-native component. These habitats are not deemed to be at risk of significant impacts associated with the Proposed Development due to their location outside of the Site boundary. There will likely be some pruning back required to bring the canopies of these features back to the Site boundary fences in places, however, it is not proposed that the trees and hedges themselves will be removed.



Figure 6. Immature Beech and Rowan treeline within adjacent private lands along the Site's north-eastern boundary.

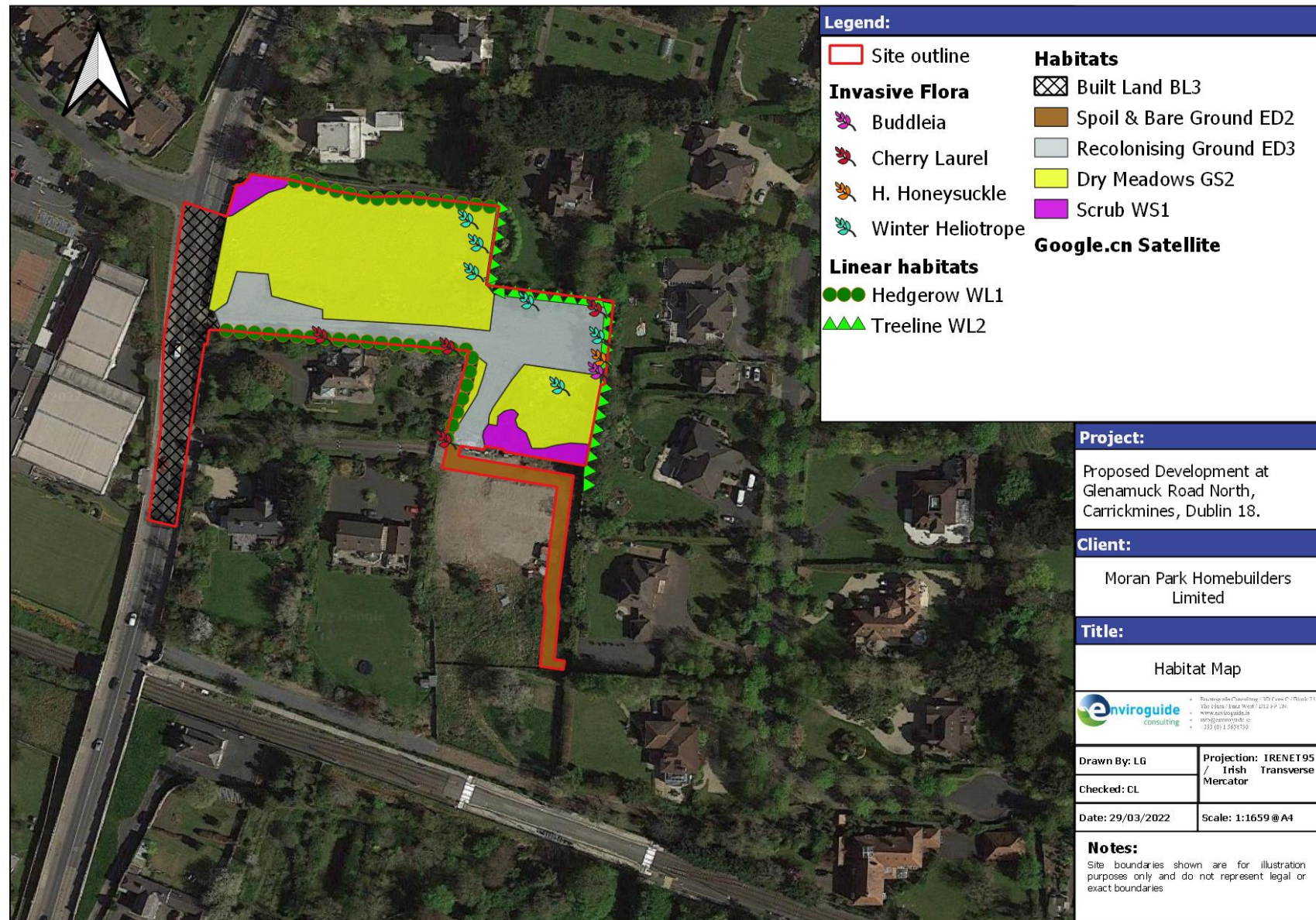


Figure 7. Habitat Map of the Site of the Proposed Development (Codes as per Fossitt, 2000).

4.4 Flora and Fauna

The Site of the Proposed Development is located within the Ordnance Survey National Grid 2km grid square O22H. Species records from the National Biodiversity Data Centre (NBDC) online database for this grid square were studied for the presence of rare/protected/invasive flora and fauna species. Details of these records are listed in the relevant tables in Appendix I at the end of this report.

4.4.1 Rare and Protected Flora

No records of rare flora, e.g., those classified as 'critically endangered', 'endangered', or 'vulnerable' on the *Ireland Red List No. 10: Vascular Plants* (Wyse-Jackson *et al.*, 2016) or the *Ireland Red List No. 8: Bryophytes* (Lockhart *et al.*, 2012), were identified during surveys of the Site of the Proposed Development. The Site does not contain any species listed on the Flora (Protection) Order 2015.

4.4.2 Invasive Plant Species

There are records for 10 species of flora considered to be invasive within the 2km (O22H) grid square within which the Site of the Proposed Development is located:

- American Skunk-cabbage (*Lysichiton americanus*)
- Butterfly-bush (*Buddleja davidii*)
- Floating Pennywort (*Hydrocotyle ranunculoides*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Hairy Rocket (*Erucastrum gallicum*)
- Himalayan Honeysuckle (*Leycesteria formosa*)
- Nuttall's Waterweed (*Elodea nuttallii*)
- Sycamore (*Acer pseudoplatanus*)
- Three-cornered Garlic (*Allium triquetrum*)
- Traveller's-joy (*Clematis vitalba*)

No species of plant listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were recorded at the Site of the Proposed Development during site surveys. High impact Cherry Laurel (*Prunus laurocerasus*) was present as planted hedgerow along the site boundaries and seedlings were also observed growing within the meadow sections of the Site. Medium impact non-native invasive species: Butterfly-bush, Winter Heliotrope (*Petasites pyrenaicus*), Himalayan Honeysuckle and Sycamore were recorded at the Site. Winter Heliotrope is a widespread coloniser of bare ground and was recorded abundantly in the east of the Site.



Figure 8. Winter Heliotrope; abundant in the eastern section of the Site

4.4.3 Mammals (excl. bats)

Records for terrestrial mammals recorded in the surrounding 2km grid square were retrieved from the NBDC online database. The following protected species were included in these results:

- Eurasian Badger (*Meles meles*)
- European Otter (*Lutra lutra*)
- Western European Hedgehog (*Erinaceus europaeus*)

Additional commonly occurring protected mammal species were also considered in the context of the Site of the Proposed Development and its environs.

No evidence of Eurasian Badger (*Meles meles*) i.e., Setts, latrines, hair, or foraging signs, was recorded at the Site during the site visits. This is as would be expected based on the highly urban surroundings of the Site and the very limited habitat range it supports.

Western European Hedgehog and Pygmy Shrew (*Sorex minutus*) have the potential to utilise the Site lands in their current condition. These small, relatively widespread species inhabit both urban and rural landscapes.

Red Fox (*Vulpes vulpes*) is a species known to inhabit highly urbanised environments and may utilise the Site. Two burrows were recorded in the east of the Site, ca.5m apart and along the boundary fencing with a private garden. These are likely associated with fox based on their size and lack of spoil heap or old bedding. A pre-construction mammal survey is recommended to update this assessment prior to the commencement of works onsite. Although not a protected species in Ireland, Red Fox are protected from cruelty or harm under the Animal Health and Welfare Act 2013.

Otter

An otter survey of the Dún Laoghaire-Rathdown area was carried out by Triturus Environmental Ltd. on behalf of DLR CoCo in 2019/2020 (Brazier & Macklin, 2020). The Carrickmines Stream was included in this survey and was noted as having a total of 14 otter signs along 6.8km of its waterbody, equating to 2.2 signs per km. This was the 4th highest density of signs recorded throughout the watercourses surveyed. Approximately half of the signs were spraints, with two sets of prints and single examples of a latrine, slide and couch recorded. A single, recently active holt was also recorded ca. 1km east of the Site of the Proposed Development, in a low disturbance, wooded area referred to as 'Druid's Glen' in the report. Otter signs were well distributed along the stream, although the density was lower in the heavily modified upper reaches. An otter slide and spraint site were recorded in association with two off-line artificial ponds (reservoirs) near Leopardstown Racecourse. The closest signs to the Site of the Proposed Development were spraint and prints located ca. 180m south of the Site, near the Glenamuck Road North Roundabout, and spraint ca. 340m east, in the wooded area where the Luas line crosses the Carrickmines Stream.

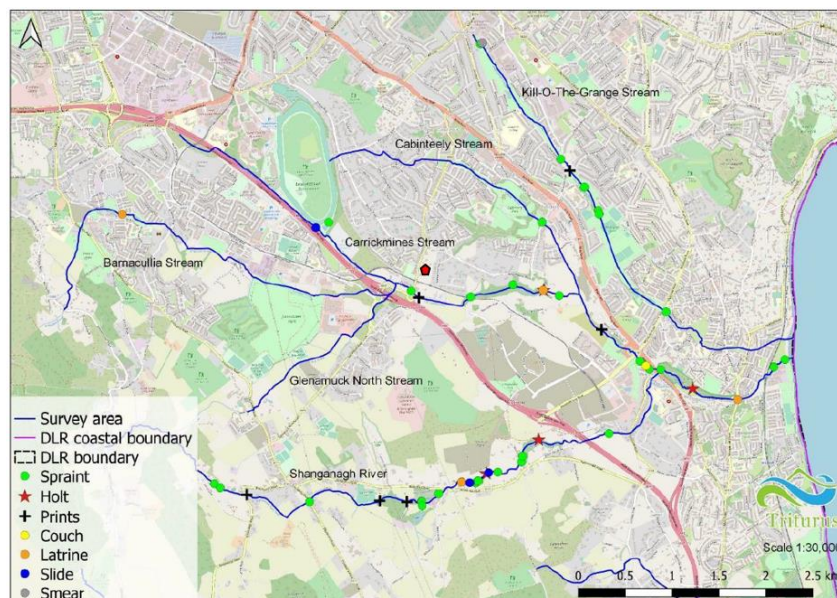


Figure 9. Map adapted from Brazier & Macklin (2020) showing otter signs recorded along the Carrickmines Stream. The Proposed Development is represented by the red pentagon.

The Carrickmines Stream provides some good otter habitat, with usage recorded along the length of the waterbody and within the vicinity of the Proposed Development. It is deemed that otter would not utilise the Site of the Proposed Development due to the lack of any suitable habitat for this species within the Site itself and its immediate surroundings. There are no waterbodies or ditches located within the Site or nearby. The nearest watercourse to the Site is the Carrickmines Stream located ca. 330m to the east. Direct impacts to Otter are not envisaged due to the separation distance between any suitable Otter habitat and the Proposed Development. However, should construction surface waters enter the surface water drainage network in the vicinity of the Site, contaminated waters could be discharged to the Carrickmines Stream via outfalls to the stream. As such, otter is considered a KER and is assessed further in this report.

4.4.4 Bats

Six species of bat have been recorded within the 2km grid square which encompass the Site of the Proposed Development:

- Brown Long-eared Bat (*Plecotus auritus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Lesser Noctule/Leisler's Bat (*Nyctalus leisleri*)
- Natterer's Bat (*Myotis nattereri*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)

4.4.4.1 Potential Bat Roost Survey

No trees or structures with bat roost potential were noted within the Site redline boundary. The Site contains scrubby vegetation, meadow and bare ground habitats, with no semi-mature or mature trees present. The Site may support some foraging or commuting bats; however, it offers no roosting opportunities in its current condition. No potential collision/flightline obstruction impacts are envisaged for the reasons detailed in section 6.4 below.

4.4.5 Birds

Results from the bird survey carried out at the Site of the Proposed Development on the 18th of February 2022 are shown in Table 2 below. A total of 10 species were identified within the vicinity of the Site of the Proposed Development, all of which are commonly observed species in urban areas. As the survey was conducted outside of the breeding bird season, all passerine species recorded are considered as potentially breeding on-site, with the caveat that a survey conducted during the breeding bird season would be required to capture any summer migrants that may utilise the Site.

Red-listed Bird Species

No species listed on the BoCCI² Red List were recorded at the Site of the Proposed Development during Enviroguide surveys.

Amber-listed Bird Species

One species listed on the BoCCI Amber List was recorded during the Enviroguide survey. Herring Gull (*Larus Argentatus*) are not deemed to be breeding at the Site as they were recorded in flight over the lands which no suitable breeding habitat present for these species.

Table 2. Bird species recorded within the vicinity of the Site during the breeding bird survey.

Species	BoCCI Status	EU Designation	Breeding Status	Notes
Herring Gull (<i>Larus argentatus</i>)	Amber	Annex II	Non-breeding	Recorded occasionally in flight over the Site.
Robin (<i>Erithacus rubecula</i>)	Green	N/A	Possible breeder	Alarm calling within scrub and hedgerow.

² Birds of Conservation Concern in Ireland 2020-2026 (Gilbert, Stanbury and Lewis, 2021).

Wren (<i>Troglodytes troglodytes</i>)	Green	N/A	Possible breeder	Flushed from hedgerow in north of Site.
Magpie (<i>Pica pica</i>)	Green	N/A	Possible breeder	Recorded in flight over the Site and in adjacent lands.
Rook (<i>Corvus frugilegus</i>)	Green	N/A	Possible breeder	Recorded occasionally in flight over the Site.
Hooded Crow (<i>Corvus cornix</i>)	Green	N/A	Possible breeder	Recorded occasionally in flight over the Site.
Jackdaw (<i>Corvus monedula</i>)	Green	N/A	Possible breeder	Recorded occasionally in flight over the Site.
Blackbird (<i>Turdus merula</i>)	Green	N/A	Possible breeder	Heard calling at Site
Wood pigeon (<i>Columba palumbus</i>)	Green	N/A	Possible breeder	Recorded in flight over the Site.
Blue Tit (<i>Cyanistes caeruleus</i>)	Green	N/A	Possible breeder	Overheard calling along treeline in east of the Site.

4.4.6 Fish

The Carrickmines and Shanganagh river systems were noted to support Brown Trout and Sea Trout (both *Salmo trutta*) in an EIAR Biodiversity Chapter (Openfield Ecological Services, 2019), conducted as part of the Glenamuck District Roads Scheme (ABP Case reference: HA06D.303945) located to the south of the Site. Inland Fisheries Ireland (IFI) provided comment included in the Biodiversity Chapter stating:

“The proposed road development is located on the in the (sic) catchment of the Carrickmines and Shanganagh system. These two systems support a resident population of Brown trout (and several other fish species) while further downstream they support a migratory population of Sea trout (both Salmo trutta). The coastal waters of the area currently retain a “high” water quality status. The Glenamuck and Shanganagh Rivers represent a valuable resource both in terms of local natural heritage (biological diversity value) and particularly from a native fisheries perspective. Both these systems constitute a local natural heritage feature warranting careful protection and conservation.”

There are no drainage ditches or waterbodies within or within close proximity to the Site of the Proposed Development, and therefore no direct impact pathway connecting the Proposed Development to the above fish species or their habitats. However, should construction surface waters enter the surface water drainage network in the vicinity of the Site, contaminated waters could be discharged to the Carrickmines Stream via outfalls to the watercourse. As such, Fish species are considered as KERs and is assessed further in this report.

4.4.7 Amphibians

Common Frog (*Rana temporaria*) is listed in Annex V of the EU Habitats Directive and protected by the Wildlife Acts 1976 and amendments. Frog have been recorded in the 2km grid square O22H as recently as 2020 (NBDC: *Amphibians and reptiles of Ireland*). Smooth Newt (*Lissotriton vulgaris*), also a protected species under the Wildlife Acts, not been recorded within or near the Site.

The absence of any waterbodies, ditches or ponds within or within close proximity to the Site of the Proposed Development represents a general lack of amphibian breeding habitat. As such breeding populations of this group are not deemed likely to be present at the Site of the Proposed Development and will not be assessed further in this report.

4.4.8 Invertebrates

White-clawed crayfish (*Austropotamobius pallipes*) was not recorded in the 2km grid square encompassing the Site of the Proposed Development. Due to the lack of any waterbodies within or within close proximity to the Site, it is not deemed that this species has the potential to be affected by the Proposed Development.

4.4.9 Other species and species groups

No records of common lizard exist within the 2km square O22H within the last 30 years and there is no suitable habitat of value for common lizard (*Lacerta vivipara*) within the Site of the Proposed Development, therefore this species is not assessed further in this report.

4.5 Summary of Ecological Evaluation

The habitats present, and species likely to utilise the Site, have been evaluated below in Table 3 for their conservation importance based on the NRA evaluation scheme (NRA, 2009b). Those selected as key ecological receptors (KERs) are those which are evaluated to be of at least local importance (higher value) and deemed to be at risk of significant effects resulting from the Proposed Development. The impacts of the Proposed Development on these receptors are assessed below in section 6. The summary in the table below indicates the evaluation rating assigned to each receptor and the rationale behind these evaluations.

Table 3. Evaluation of potential ecological sensitivities within the vicinity of Site of the Proposed Development.

Ecological Receptor	Evaluation	Rationale	Key Ecological Receptor (KER)?
Designated Sites			
European Sites	International Importance	Likely significant impacts to European Sites were Screened out in the AA Screening Report which accompanies this application under separate cover. Please refer to the AA Screening Report for further details.	No
Dalkey Coastal Zone and Killiney Hill pNHA	National Importance	Indirect hydrological connections exist linking the Proposed Development to the pNHA via the receiving surface water network and the Shanganagh-Bray WWTP. No potential for significant impacts is envisaged (See section 4.2.2).	No
Loughlinstown Woods pNHA	National Importance	An indirect hydrological connection exists linking the Proposed Development to the	No

		pNHA via the receiving surface water network and Carrickmines Stream. No potential for significant impacts is envisaged (See section 4.2.2).	
Habitats			
Buildings and Artificial Surfaces (BL3) Spoil and Bare Ground (ED2) Recolonising Bare Ground (ED3)	No ecological value	Anthropogenic habitats with low ecological value to local flora and fauna.	No
Dry Meadows (GS2)	Local Importance (Lower Value)	Rank grassland with some local ecological value to pollinators at the Site scale. A common habitat.	No
Hedgerows (WL1) Treelines (WL2) Scrub (WS1)	Local Importance (Lower Value)	Planted non-native/ornamental hedgerow/treeline sections along the site boundaries. Provide limited habitat connectivity with surrounding lands. Largely present outside of the Site boundary and within adjoining private gardens.	No
Fauna			
Badger	Local Importance (Lower Value)	No evidence of usage at the Site.	No
Hedgehog	Local Importance (Higher Value)	Some suitable habitat present within the Site. May be present.	Yes
Pygmy Shrew	Local Importance (Higher Value)	Some suitable habitat present within the Site.	Yes
Otter	Local Importance (Higher Value)	No potential habitat within the Site of the Proposed Development, however, otter have been recorded along the Carrickmines Stream near the Site.	Yes
Bat assemblage	Local Importance (Lower Value)	No potential roosting habitat present at the Site and limited foraging/commuting habitat.	No
Bird assemblage (Amber listed)	Local Importance (Lower Value)	Herring Gull recorded overhead. Not deemed to be breeding onsite.	No
Bird assemblage (Green listed)	Local Importance (Higher Value)	Several common species recorded and possibly breeding onsite.	Yes
Fish species	Local Importance (Higher Value)	No potential habitat within the Site of the Proposed Development, however, known to be present within the Carrickmines Stream.	Yes

5 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Moran Park Homebuilders Limited intend to apply to An Bord Pleanála for planning permission for a strategic housing development on an overall site of c. 0.92 ha (c. 0.74 ha relates to the main development site and c. 0.18 ha relates to additional lands for drainage and access proposals) at Glenamuck Road North, Carrickmines, Dublin 18 (bounded by 'Tullybeg' to the north, 'Chigwell' to the northeast, 'Stafford Lodge' to the south and 'Carricáil' to the southeast).

The Proposed Development shall provide for the construction of (a) 118 no. residential apartment units in the form of 3 no. residential blocks of apartments ranging in height from 4 storey's and transitioning to 6-7 storeys overall.

The overall development proposal shall provide for the following:

- Block A (7 storeys) comprising 44 no. units (13 no. 1 bed units, 28 no. 2 bed. units and 3 no. 3 bed units);
- Block B (6-7 storeys overall) comprising 38 no. units (11 no. 1 bed units, 26 no. 2 bed units and 1 no. 3 bed units); and
- Block C (6 storeys overall) comprising 36 units (10 no. 1 bed units; 22 no. 2 bed units and 4 no. 3 bed units);

Each new residential unit has an associated area of private open space in the form of balcony / terrace area and set back upper floor levels.

Open space (approx. 2,071 sqm) is provided by one major centrally located public open space (1158.4 sqm) between blocks A and B which include a play area of 63.2 sqm, two further communal open space areas are provided adjoining Blocks B (471.8 sqm) & Block C (440.8 sqm).

Communal Area located at the ground floor of Block B (approx. 161.3 sqm) comprising of a shared working space (35.6 sqm), meeting rooms (42.2 sqm.), a gym (36.6 sqm) and changing/tea stations (46.7 sqm) is also proposed.

2 no. basement level areas (approx. 2,340.9 sqm) are also proposed at lower ground / ground floor level of Blocks A, B (1,470.0 sqm) and C (834.9 sqm) and include car parking, bicycle parking, refuse storage areas, plant areas and ESB Substation which is located between Block B and C.

A total of 103 no. car parking spaces (67 no. at basement level and 36 no. at surface level to include 17 no. electric power points and 5 no. accessible parking spaces) are proposed. In addition, 5 no. motorcycle parking spaces (3 no. at basement level A and B, and 2 no. at basement level C). A total of 280 no. bicycle parking spaces (254 no. at basement level and 26 no. at surface level) are also proposed.

Proposals for vehicular and pedestrian access comprise via Glenamuck Road North and all associated upgrade works; The access point to the south (via Carricáil) is for pedestrians and cyclists only.

Associated site and infrastructural works including the provision for water services, foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works to include new tree and hedge planting; green roofs; boundary treatments; internal roads and footpaths; and electrical services.

5.1 Construction Phase

A Preliminary Construction Management Plan (PCMP) has been prepared by Waterman Moylan Consulting Engineers (WM) which sets out the typical arrangements and measures which may be undertaken during the construction phase of the project in order to mitigate and minimise disruption / disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Final Construction Management Plan on site. The Construction Phase is expected to be spread over a period of 24 months.

5.1.1 Construction Surface Water Drainage

The Site in its current condition is partially greenfield in nature, with areas of hardstanding and exposed earth also present. According to the Engineering Assessment Report (EAR) (WM, February 2022), The land naturally slopes significantly from the north (the highest point is c.79.60m) towards the south (the low point is c.74.0m).

The Proposed Development entails the construction of two basement areas; one under Block A and B, and one under Block C. The PCMP notes the following:

- The contractor will develop an appropriate dewatering scheme to keep the basement/excavations free from water and ensure the quality of water leaving site is high.
- During any discharge of surface water from the basement/excavations, the water will be managed through the provision of settlement tanks and will be regularly monitored visually for hydrocarbon sheen and suspended solids.
- Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of Dun Laoghaire-Rathdown County Council before discharge to the surrounding drainage network.
- Appropriate discharge licenses will be acquired from Dun Laoghaire-Rathdown County Council in respect of discharges from dewatering operations.

5.2 Operational Phase

5.2.1 Operational Foul Water

The Site of the Proposed Development is located within the *F012 – Shanganagh Foul Catchment* according to the Greater Dublin Strategic Drainage Study (GDSDS, 2005), with foul waters in the vicinity of the Site draining to the Shanganagh Trunk Sewer prior to treatment at Shanganagh Wastewater Treatment Plant, and eventual outflow into Killiney Bay once treated.

Pre-Connection Enquiry form was submitted to Irish Water on 12th of January 2021 which outlined the foul water discharge proposal, and it was assessed under Irish Water Reference No. CDS21001100.

Confirmation of feasibility has been received from Irish Water, and connection of water and wastewater can be facilitated with no upgrade works needed on the existing network.

As outlined in EAR the Proposed Development, it is proposed that the foul water from Blocks A, B and C discharge by gravity to the existing foul sewer in Brennanstown Vale to the south-east.

5.2.2 Operational Surface Water Drainage

The Site of the Proposed Development is located within the *S1108 – Carrickmines River Storm Level 1 Catchment* (GDSDS, 2005), with surface water in this catchment draining to the Carrickmines River and the Shanganagh River prior to eventual outflow into Killiney Bay 3.7km east of the Site.

As outlined in the EAR produced by WM, the development site will drain by gravity, with runoff restricted to the equivalent of the existing agricultural runoff. Excess storm water will be stored in an underground attenuation area which will be provided under parking area in front of Block B and under the road in front of Block C. Surface water runoff shall be restricted via a hydrobrake or similar approved device. A new surface water sewer will be laid from the subject site and will drain by gravity at a restricted rate to an existing 225mm diameter surface water sewer at Brennanstown Vale, south east of the subject site.

The design of the surface water drainage network for the Proposed Development has taken cognisance of the objectives and guidance contained in the Greater Dublin Strategic Drainage Study (GDSDS) and comprises interception and treatment by a suite of SUDS measures incorporated into the project design prior to discharge from the Site. According to the EAR these will include:

- Green roofing across much of the proposed structure roofing (>60% total roof area).
- Permeable paving across all surface level car parking spaces and some podium level locations.
- Tree pits will collect water run-off from roads wherever possible (via kerb inlets and connecting gullies to tree pits). Gullies will be positioned downstream of the tree pits to cater for overflow during high rainfall events. The surface water drains through the tree pit, which is filled with engineered filter material, to the underdrain system which discharges the treated surface water to the main surface water sewer in the roadway.
- Bioretention areas in the form of rain gardens and rainwater planters will be utilised where possible; to slow the flow/runoff from the roof areas before it enters the main drainage system.
- A flow control device (Hydro-brake or similar) is proposed before the outfall to the public network, with an online attenuation system provided to store excess rainwater during storm events. Flows will be limited to the greenfield equivalent runoff rate.

With regard SUDS, it is a policy of Dún Laoghaire Rathdown County Council (DLR CoCo), as laid out in the County Development Plan 2016 – 2022 (Policy EI3), to “*require that a Sustainable Drainage System (SuDS) is applied to any development and that site specific solutions to surface water drainage systems are developed, which meet the requirements of the Water Framework Directive and the associated River Basin Management Plans and ‘Water Quality in Ireland 2007-2009’ (EPA 2011) or any updated version of the document*”.

It is noted that these design features are a requirement in all new developments, as per the above policy; to contribute to both the improvement of water quality in receiving waterbodies and the easing of pressures on existing drainage networks. SUDS measures are in **no way** included as a mode of mitigating potential effects on European Sites as a result of the Proposed Development.

6 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

6.1 Impacts on Designated Sites

The Appropriate Assessment Screening Report prepared by Enviroguide Consulting, containing information for the purposes of Stage 1 Screening for AA, is presented in a separate document with this application, the conclusions of which are presented below:

“The Proposed residential development at at Glenamuck Road North, Carrickmines, Dublin 18 (bounded by ‘Tullybeg’ to the north, ‘Chigwell’ to the northeast, ‘Stafford Lodge’ to the south and ‘Carricáil’ to the southeast) has been assessed for its potential to result in likely significant effects on European Sites, with the following factors considered:

- *the nature, size and location of the Proposed Development and possible impacts arising from the associated construction works and its operational lifetime.*
- *the potential for in-combination effects alongside other plans and projects leading to effects on European Sites.*
- *the qualifying interests and conservation objectives of all relevant European Sites.*

*In conclusion, upon the examination, analysis, and evaluation of the relevant information, and in applying the precautionary principle; it is concluded by the authors of this report that, on the basis of objective information, **the possibility may be excluded** that the Proposed Development will have any significant effect on the following European Site noted to be linked by a Source-Pathway-Receptor impact pathway, due to the nature of the indirect hydrological connection with the Site of the Proposed Development:*

- *Rockabill to Dalkey Island SAC [003000]*

These complete, precise, and definitive findings, based on the best available scientific evidence, remove all reasonable scientific doubt that the Proposed Development will have any significant impacts on the European Sites detailed above. It is also noted that, pursuant to the judgement in C-323/17 People Over Wind and Peter Sweetman v Coillte, no measures intended to avoid or reduce the potential harmful effects of the project on any European Site have been taken into account in this Appropriate Assessment Screening Report and its conclusions.”

Based on this assessment it has been deemed that there is not risk of any significant impacts to European Sites as a result of the Proposed Development.

6.1.1 Natural Heritage Areas

As detailed in section 4.2.2 it is deemed that there is no possibility for significant impacts at any pNHA sites, or any other adverse impact, as a result of the Proposed Development, due to a lack of a significant source-pathway-receptor link.

6.2 Impacts on Habitats and Flora

The Proposed Development will result in the loss and replacement of the meadow and recolonising/bare ground habitats currently present within the Site of the Proposed Development. These habitats are not considered to be of significant conservation or biodiversity value, and

their loss will not constitute a significant negative impact as a result of the Proposed Development.

The proposed works will result in minimal loss of sections of largely non-native *Hedgerow (WL1)* and *Treeline (WL2)* along the margins of the Site, as the majority of these habitat features are planted within adjoining private gardens and are therefore outside of the area of proposed works. There will likely be some pruning back required to bring the canopies of these features back to the Site boundary fences in places, however, it is not proposed that the trees and hedges themselves will be removed.

In the absence of appropriate mitigation measure, the proximity to some of the buildings (Block B), car parking areas along boundary treeline B, and the proposed access road along boundary hedgerow F (see JMA Drawing no: 4234/21/002 for detail); may impact on the root protection zones of trees located along these boundaries. This would represent a potential **long-term, negative, significant** impact to these trees **at the Site scale** if their roots zones were to be impacted and the health of the trees were to deteriorate. The Arboricultural Assessment prepared by JM McConville + Associates (JMA, 2021) provides recommendations in this regard, as detailed in section 7 of this report: *Mitigation and Enhancement Measures*.

The Arboricultural Assessment (JMA, 2021) concludes the following with regard the potential impacts to trees and hedgerows at the Site:

“Implications of Proposed Development

Trees inside boundary B, are affected by the proposed carpark, trees inside boundary F are potential affected by the access road, special measures will be taken, see part three, Arboricultural Method statement.

The proximity of Block B to the trees inside the boundary C, a Sycamore and a Horse chestnut will mean they will require their canopies managed. They are early mature trees with good vitality. They will tolerate the disturbance caused by the construction of the building.

Potential Nuisance

The proposed development is being constructed on a site with no trees, there will no risk of potential nuisance from the trees and hedges on adjacent sites.

Construction Implications

General precautions in storage or mixing of materials that may be injurious to trees on adjacent sites will need to be taken. All toxic materials, (cement, mortar, bitumen, diesel, bonding agents, etc) will be stored 10m from root protection areas. No wash out facilities will be provided for ready mix concrete/mortar deliveries. All fuels stored on site will be bunded to prevent spillage or leakage.”

Proposed tree planting at the Site will increase its overall tree cover, with tree species including Oak (*Quercus robur*), Lime (*Tilia cordata*), Hazel (*Corylus avellana*) and Birch (*Betula pendula*) planted throughout, as well as some more ornamental flowering species proposed. The landscape plan entails the planting of native tree and hedgerow species along the various boundaries of the Site and will entail native species such as Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Holly (*Ilex aquifolium*), and Dog Rose (*Rosa canina*).

It is therefore concluded that the Proposed Development will result in a positive impact through the enhancement of the vegetative habitats found at the Site. This general increase in the quality and provision of habitats at the Site of the Proposed Development represents a **positive, permanent, moderate** impact overall at a **local** scale, increasing habitat connectivity for species such as local birds.

There is also the opportunity for further biodiversity enhancement through the extensive planting of pollinator friendly flower and shrub species where possible; that will benefit bees and suburban pollinator species, along with birds and local bats through an increased availability of prey.

6.3 Impacts on Fauna

No mammals of conservation concern were recorded within the Site of the Proposed Development. A pair of mammal burrows likely to be fox were recorded in the east of the Site. A pre-construction mammal survey is recommended in section 7 to ensure a current assessment is made of the usage of the Site by mammals prior to construction commencing.

6.3.1 Construction Phase surface water

The Proposed Development involves amendments to the Glenamuck North Road along the Site's western extent. In addition, the works within the Site itself will require the excavation of basements. According to the Engineering Assessment Report (EAR) (WM, February 2022), The land naturally slopes significantly from the north (the highest point is c.79.60m) towards the south (the low point is c.74.0m).

As such, and if unmitigated, there is the potential for surface water run-off generated at the Site to flow downgradient towards the Carrickmines Stream, as it flows under the Glenamuck Road North, and enter the receiving drainage network via storm drains along the road. These storm drains presumably outflow to the Carrickmines Stream and could lead to reductions in water quality therein.

The reduction in water quality associated with unmitigated construction related run off could result in **negative, short-term, significant** impacts to otter, at the scale of the Carrickmines Stream in a worst case scenario; through a reduction in prey species, and to the fish themselves through a reduction in fitness and spawning success.

6.3.2 Construction waste

Small mammals have the potential to become entangled in construction waste materials e.g., plastic, netting etc., and as such this represents a **negative, short-term, moderate** impact at a **local** scale.

6.3.3 Noise disturbance

Noise generated during the Construction Phase has the potential to cause **negative, short-term, moderate** impacts in the form of disturbance to mammals in the locality, however the general area surrounding the Site of the Proposed Development is commercial and residential and, as such, a degree of habituation to anthropogenic noise would be expected.

6.4 Impacts on Bats

No potential roosting opportunities for bats exist at the Site in its current condition. A bat activity survey was not carried out at the Site due to seasonal time constraints. The Site provides little in the way of foraging opportunities, and all existing boundary vegetation at the Site is being retained. Bats may utilise the area in the vicinity of the Site and as such, a precautionary approach is taken in terms of potential impacts and their mitigation.

6.4.1 Night-time Light spill

Excess light spill from the Proposed Development on to hedgerows and vegetation at the Site could render normally dark commuting and foraging routes unsuitable for bats, and negatively impact on their foraging commuting behaviours if present. This is considered to represent a **negative, permanent, moderate** impact at a **local** level in the absence of suitable mitigatory measures.

Regarding collisions with proposed structures at the Site, it is noted that bats commute and forage largely using echolocation and as such are capable of navigating buildings unless largely made of smooth reflective metal or glass. In this regard, due to the heterogenous composition of the proposed building façades, collisions are not deemed to represent a significant risk, and light spill would be the more likely obstruction to bat movements that could arise.

6.5 Impacts on Birds

The species recorded in the vicinity of the Site of the Proposed Development were common hedgerow species either flying overhead or foraging within the limited vegetated habitats present on site. The below impacts to these bird species have the potential to occur.

6.5.1 Injury/mortality during Site Clearance

Should vegetation clearance occur during the nesting season there is the potential for the destruction of nests and eggs, as well as the mortality of young birds prior to fledging. This would represent a **negative, short-term, significant** impact at a **local** scale, in the absence of mitigation.

6.5.2 Noise Disturbance

The Construction Phase of the Proposed Development will likely involve elevated noise levels associated with the proposed excavation and construction works. As a result, there is a potential risk of noise disturbance to birds in the vicinity of the Site, representing a **negative, short-term, slight** impact at a **local** level in the absence of suitable mitigation.

6.5.3 Collision with Site Structures

The height of buildings, coupled with the use of glass in their design can in some cases have the potential to impact on local birds (both migratory and non-migratory) through collisions. This is a result of birds being unable to distinguish between reflections in glass and the natural environment (resulting in birds flying into windows that appear to be trees or sky), and their inability to perceive clear glass as a solid object (City of Toronto, 2016).

Birds can strike clear glass while attempting to reach habitat and sky seen through corridors, windows positioned opposite each other in a room, ground floor lobbies, glass balconies or

glass corners. The impact of striking a reflective or clear window in full flight often results in death.

The physical location of buildings and structures can also affect the likelihood of bird collisions. Structures placed on or near areas regularly used by large numbers of feeding, breeding, or roosting birds, or on local flight paths, such as those between foraging and roosting areas can present a higher risk of collision.

The Site itself is not deemed to be located in a sensitive area in terms of bird flight paths i.e., it is not located along the coast, or near any Special Protected Areas (SPAs) designated for wetland bird populations and is in itself not deemed to represent suitable ex-situ feeding/roosting habitat for any such species (Site comprises of rank grassland and spoil and bare ground).

In addition, the Proposed Development entails building heights ranging from 4 to 7 storeys in height. As such, the risk of migrating birds colliding with the structures due to their height is deemed to be negligible [Migrating species tend to commute far above this with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020). Birds foraging and/or commuting over or around the Site would fly at lower heights than this but once the buildings are visible to the birds and provide discernible cues as to their existence, birds will simply fly over or around them.

In this regard the overall façades of the proposed structures are well broken up, with a varied material composition which disperses their respective reflective components (see Figure 11 below). These architectural design features provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity of the Site. This overall visual heterogeneity of the building façades will be sufficient to ensure that the risk of bird collisions as a result of the Proposed Development is **negligible**.

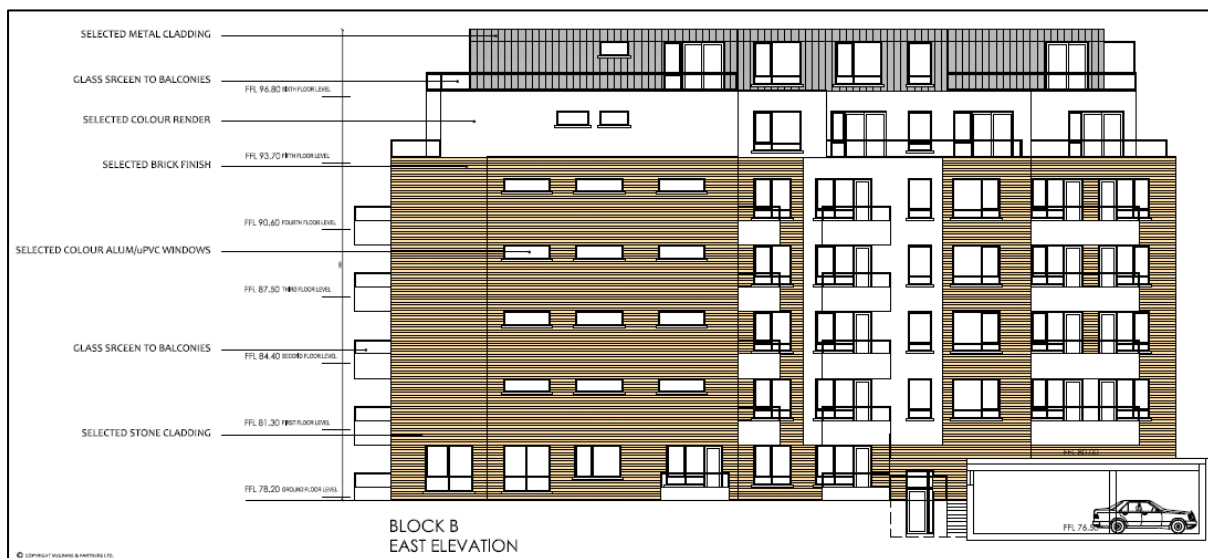


Figure 11. Example of the façade treatments for the Proposed Development, with areas of glazing well interspersed with areas of opaque materials e.g., coloured brick and render (Extracted from McGrane & Partners Drawing no: 2102 PD25B).

6.5.4 Positive Impact

6.5.4.1 Habitat enhancement

The development of the Site in question will have a **positive, permanent, moderate** impact on local bird populations, it is expected; due to the increase in native tree and hedgerow cover proposed for the site. This will increase habitat connectivity for birds at the Site and with the surrounding lands.

6.6 Do Nothing Impact

If the Proposed Development were not to go ahead, the Site would gradually become overgrown and transition to a mix of scrub and rough grassland. Seedlings such as the Cherry Laurel observed in the meadow sections of the Site would continue to spread and establish as non-native scrub.

6.7 Cumulative Impacts

6.7.1 Existing Granted Developments

A search of planning applications located within the vicinity of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and DLR CoCo's Planning Application Map. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on European Sites, other designated sites and the surrounding environment. Long-term developments granted outside of this time period were also considered where applicable.

The following granted development is of note due to its location adjacent to the Site of the Proposed Development to the south, and the overlap in terms of proposed surface and foul water infrastructure:

Planning Ref: D18A/1187. **ABP Ref:** ABP-304995-19 **Applicant:** Carricail Development Company Ltd. **Application Date:** 10 Jun 2019 **Location:** Carricáil, Glenamuck Road North, Dublin 18, D18 V8K5 **Decision:** GRANT PERMISSION **Decision Date:** 08 Nov 2019.

Distance from Proposed Development: Adjacent to south.

- **Description:** Permission for a residential development on an overall site of c. 1.06 ha (c. 0.40 ha being development area and c. 0.66 ha being drainage / access area). The development shall provide for the demolition of a two-storey dwelling on site (c. 326 sqm GFA) and the construction of 30 no. residential units (8 no. apartments and 22 no. duplex units) in the form of 1 no. 4 storey residential block. The development shall provide for 4 no. 1 bed units, 10 no. 2 bed units, and 16 no. 3 bed units, ranging in size from c. 63 - 143.8 sqm and all with private balcony / terrace areas. Vehicular access is proposed from Glenamuck Road North via the alignment permitted in the development to the north (Reg. Ref.: D16A/0260 and An Bord Pleanála PL06D.247822 refers). A pedestrian access point is also proposed via the existing vehicular access serving Carricáil. The proposed development shall also provide for 44 no. car parking space, bicycle storage and bin storage at surface level; a central public open space area; all boundary treatment and

landscaping works; the routing of new services through lands at no. 10 Brennanstown Vale, Dublin 18 (D18 K8N6) and via the proposed vehicular and pedestrian access points serving the development to connect to existing services; and all associated site development works.

No developments with the potential to result in likely significant in-combination effects to any European or designated site were identified. The majority of applications in the vicinity of the Site are for domestic extensions and revisions to existing private dwellings. Additionally, the surrounding environment of the Proposed Development is private residential in nature, and largely comprises private dwellings and their gardens. Therefore, the Proposed Development will not contribute to an overall loss of important habitats in the area.

The Proposed Development will have no significant impacts to important habitats or designated sites on its own and will also not contribute to any cumulative impacts on such receptors involving other developments in the area. Any combined impacts relating to construction phase overlap of the adjacent development to the south, should it occur, (e.g., noise, dust etc.) would be short-term and localised in nature and would not have the potential to affect any European Sites or other designated sites due to the intervening distances involved. Such impacts have been mitigated against in section 7 below and will ensure that any localised construction noise and dust impacts are minimised.

6.7.2 Relevant Policies and Plans

In addition, the following Policies and Plans were reviewed and considered for possible in-combination effects with the Proposed Development.

- Dún Laoghaire Rathdown County Development Plan 2016-2022
- Dún Laoghaire Rathdown Biodiversity Plan 2009-2013 (New plan in progress)

It is noted that there is potential for proposed plans and projects within the DLR County Development Plan 2016 - 2022 land area, to have cumulative, negative impacts on conditions in South Dublin Bay and other coastal areas, via rivers, other surface water features, and foul waters treated at waste water treatment plants (WWTP). However, such developments are required to conform to the relevant regulatory provisions for the prevention of pollution, nuisance or other environmental effects likely to significantly affect downstream ecological sensitivities. Furthermore, the potential for significant cumulative effects on aquatic sensitivities along the Killiney Bay coastline as a result of increased loading of the receiving Shanganagh-Bray WWTP is deemed to be negligible as detailed in the following section.

6.7.3 Increased Loading on Shanganagh-Bray WWTP

The Shanganagh-Bray WWTP and its associated transfer pipeline infrastructure were completed in 2012, with a capacity design of 43,700 m³/day, equivalent to a population of 186,000 people (PE) (Dragados.co.uk). This WWTP operates under EPA licence D0038-02 and treats flows from the catchment areas of Deansgrange, Killiney, Carrickmines, Shankill and Bray.

The Shanganagh-Bray WWTP was identified by the EPA as being fully compliant with the Emission Limit Values (ELVs) as set out in the Wastewater Discharge Licence, according to the Strategic Environmental Assessment (SEA) carried out for the Draft DLR County Development Plan 2022-2028 by CAAS Ltd. (2021). The 2020 Irish Water Annual Environmental Report (AER) for this facility, indicates surplus treatment capacity of 56,665 PE in 2020 (Irish Water, 2020). As such, it is not envisaged that the Proposed Development has the potential

to act in combination with other developments and lead to overloading at the WWTP based on its current treatment capacity.

In addition, sustainable development, including SUDS measures for all new developments, is inherent in the objectives of all development plans within the Greater Dublin Area, as per the Greater Dublin Regional Code of Practice for Drainage Works. Therefore, upon examination of the above listed plans and projects within the general vicinity of the Proposed Development, and the above information regarding current Greater Dublin drainage policy and requirements; it is concluded that there is **no possibility for any significant cumulative effects** on downstream ecological sensitivities involving the Proposed Development.

7 MITIGATION AND ENHANCEMENT MEASURES

7.1 Construction Phase

7.1.1 *Pre-construction Mammal survey*

Two burrows were recorded in the east of the Site, ca.5m apart and along the boundary fencing with a private garden, during a site walkover on 18th February 2022. These are likely associated with fox based on their size and lack of spoil heap or old bedding.

A pre-construction mammal survey is recommended to update this assessment prior to the commencement of works onsite. Although not a protected species in Ireland, Red Fox are protected from cruelty or harm under the Animal Health and Welfare Act 2013.

7.1.2 *Construction Surface Water Management*

The PCMP prepared by Waterman Moylan notes the following:

- The contractor will develop an appropriate dewatering scheme to keep the basement/excavations free from water and ensure the quality of water leaving site is high.
- During any discharge of surface water from the basement/excavations, the water will be managed through the provision of settlement tanks and will be regularly monitored visually for hydrocarbon sheen and suspended solids.
- Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of Dun Laoghaire-Rathdown County Council before discharge to the surrounding drainage network.
- Appropriate discharge licenses will be acquired from Dun Laoghaire-Rathdown County Council in respect of discharges from dewatering operations.

To prevent contaminated construction related surface waters entering existing surface water drains within or near the Site, the measures listed above and below will also be put in place. These measures will be included as part of the contractor's Construction Management Plan (CMP).

- Prior to construction commencing, all storm drains and curb inlets etc., within the Site area, and in close proximity (particularly along the Glenamuck Road North), will be identified by the contractor and suitably protected from potential sediment/contaminant input. This can be accomplished by using temporary storm drain filters that come in a

variety of forms e.g., porous fabric barriers such as curb inlet filters and drain guards (e.g., <https://ssienvironmental.ie/product/drain-guard/>). Other makes are available).

- The above drain protection measures will be checked, cleaned and maintained for efficacy throughout the Construction Phase, with checks carried out daily for damage or sediment loading and cleaning carried out as required.
- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site.
- Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather.
- Mixer washings are not to be discharged into surface water drains and will be collected and disposed of at a suitably licenced facility.
- Debris and sediment captured by vehicle wheel washes will be collected and disposed off-site at a licensed facility.
- All oils, fuels and other chemicals will be stored in a secure bunded hardstand area (within the construction compound) and away from any drains or surface water inlets.
- Refuelling and servicing of construction machinery will take place in a designated hardstanding area (within the construction compound) which is also remote from any surface water inlets (when not possible carry out such activities off-site).
- A response procedure will be put in place to deal with any accidental pollution events, spillage kits will be available and construction staff will be inducted with regard to the emergency procedures/ use of spill kits.

7.1.3 Tree Protection

The Arborist Assessment (JMA, 2021) and the Arboricultural Method Statement therein, details a suite of tree protection measures that will be adhered to for the duration of the Construction Phase of the Proposed Development.

These measures include the following:

- All works to trees and all operations adjacent to trees should be undertaken in accordance with the Method Statement.
- The contractor shall undertake no works to trees unless instructed by the Contract Administrator.
- All works within or close to the protected tree zones are to be supervised by the appointed Consultant Arboriculturalist (CA),
- All operations are to be in accordance with BS 5837: 2012, Trees in relation to design, demolition and construction. The main contractor should purchase and make available on site a copy of the above.

Root Protection Zones (RPZ)

In accordance with the Method statement and as per the issued drawings protective fences shall be erected before the commencement of building works on site (other than remedial tree works and erection of the boundary fence). The area within the tree fencing should be clearly

identified with signage as the 'Protected Tree Zone'. The local planning authority will be notified in writing once the fencing is in place.

Strictly no access should be permitted to this zone unless instructed by the CA. The appointed Consultant Arboriculturalist should be notified of any works or access to this zone. The fencing will remain in place until completion of the main construction phase and then only removed with the consent of the local planning authority to permit completion of the scheme.

Other than works detailed within this method statement or approved in writing by the local planning authority, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing. No fires should be lit close to or within 20 metres of the trunk of any tree that is to be retained. No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained.

Construction near or within RPZ

The construction of part of the access road is within the Root protection area of trees, the construction shall be undertaken using a no dig method, a minimum amount of top soil shall be removed, and existing ground level shall be maintained. Once the soil is graded and lightly compacted it shall be over laid with geo fabric and a 3 dimensional cellular confinement system. Paving within root protection areas shall be in accordance Clause 7.4 of BS 5837 : 2012.

Where permanent hard landscaping is to be provided within root protection zones, special measure shall be implemented. All existing hollows/ drains shall be filled with 50mm crushed stone, with no fines, and then over laid with geo fabric and a cellular confinement system. The path will be worked around the stems of existing retained trees, so as to preserve existing ground levels. Paving within root protection areas shall be in accordance with APN 12 (2007).

7.1.4 Controlled Vegetation Removal

To ensure compliance with the Wildlife Act 2000 as amended, the removal of areas of vegetation should not take place within the nesting bird season (March 1st to August 31st inclusive) to ensure that no significant impacts (i.e., nest/egg destruction, harm to juvenile birds) occur as a result of the Proposed Development. Where any removal of vegetation within this period is deemed unavoidable, a qualified Ecologist will be instructed to survey the vegetation prior to any removal taking place. Should nesting birds be found, then the area of habitat in question will be noted and suitably protected until the Ecologist confirms the young have fledged, or a derogation licence is obtained from the NPWS.

The following table provides guidance for when vegetation clearance is permissible. Information sources include the British Hedgehog Preservation Society's *Hedgehogs and Development* and The Wildlife (Amendment) Act, 2000.

Table 4. Seasonal restrictions on vegetation removal. Red boxes indicate periods when clearance works are not permissible

Ecological Feature	January	February	March	April	May	June	July	August	September	October	November	December

Breeding Birds	Vegetation clearance permissible	<u>Nesting bird season</u> No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.	Vegetation clearance permissible
Hibernating mammals (namely Hedgehog, excluding bats)	<u>Mammal hibernation season</u> No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.	Vegetation clearance permissible	<u>Mammal hibernation season</u> No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.
Bats	Tree felling to be avoided	Preferred period for tree-felling	Tree felling to be avoided

The preferred period for vegetation clearance is within the months of September and October as per the above table. Vegetation should be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., Hedgehog). Where this seasonal restriction cannot be observed, a check for active roosts and nests will be carried out immediately prior to any Site clearance by an appropriately qualified ecologist /ornithologist and repeated as required to ensure compliance with legislative requirements.

7.1.5 Noise Control

A number of measures will be included in the PCMP (WM, 2022) as set out in *BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*, that will be put in place during the Construction Phase of the Proposed Development. These will ensure that the level of noise caused by the proposed works will be controlled/reduced where possible so as to minimise the potential disturbance impact on local bird species.

These measures will include but are not limited to:

- Selection of plant with low inherent potential for generating noise.
- Avoid unnecessary revving of engines and switch off plant items when not required.
- Keep plant machinery and vehicles adequately maintained and serviced.
- Proper balancing of plant items with rotating parts.
- Keep internal routes well maintained and avoid steep gradients.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use of alternative reversing alarm systems on plant machinery.

- Where noise becomes a source of resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Appointing a site representative responsible for matters relating to noise.
- Monitoring typical levels of noise during critical periods and at sensitive locations.

These measures will ensure that any noise disturbance to local birds or any other fauna species in the vicinity of the Site of the Proposed Development will be reduced to a minimum.

7.1.6 Dust Control

Dust generated by the construction of the Proposed Development will be controlled and minimised by implementation of the following measures, as detailed in the PCMP (WM, 2022):

- The use of hardcore access route to work front;
- A regime of 'wet' road sweeping can be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
- Footpaths immediately around the site can be cleaned by hand regularly, with damping as necessary.
- High level walkways and surfaces such as scaffolding can be cleaned regularly using safe 'wet' methods, as opposed to dry methods.
- Vehicle waiting areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
- Vehicle and wheel washing facilities can be provided at site exit(s) where practicable. If necessary vehicles can be washed down before exiting the site.
- Netting can be provided to enclose scaffolding in order to mitigate escape of air borne dust from the demolition.
- Vehicles and equipment shall not emit black smoke from exhaust system, except during ignition at start up.
- Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
- Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
- Internal combustion plant should not be left running unnecessarily.
- Exhaust direction and heights should be such as not to disturb dust on the ground and to ensure adequate local dispersal of emissions.
- Where possible fixed plant such as generators should be located away from residential areas.

- The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
- The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
- Material handling areas should be clean, tidy and free from dust.
- Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
- Drop heights for chutes / skips should be kept to a minimum.
- Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
- Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
- Stockpiles where necessary, should be sheeted or watered down.
- Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
- No burning of materials will be permitted on site.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Cutting on site should be avoided where possible by using pre-fabrication methods to facilitate any temporary works that may be required to enable the demolition.
- Equipment and techniques for cutting / grinding / drilling / sawing etc, which minimise dust emissions and which have the best available dust suppression measures, should be employed.
- The main contractor will allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.

7.1.7 Construction Waste Best Practise

As best-practise all construction-related rubbish on site e.g., plastic sheeting, netting etc. should be kept in a designated area and kept off ground level so as to prevent small mammals such as hedgehogs from entrapment and death.

7.1.8 Invasive Plant Species Management

A number of medium impact invasive species were recorded at the Site during the ecological surveys. No species of plant listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (SI 477 of 2011). were recorded at the Site of the Proposed Development during site surveys.

Cherry Laurel, Buddleia and Winter Heliotrope are not included in the Third Schedule. Therefore, their presence at the site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011). The National Biodiversity Centre

(NBDC) notes that, under the right ecological conditions Cherry Laurel and Buddleia can potentially impact on the conservation goals of a European site, or a water body achieving good/high ecological status under the Water Framework Directive (Directive 2000/60/EC).

Buddleia and Winter Heliotrope are also included in the NRA Guidelines on the *Management of Noxious Weeds and Non-native Species on National Roads* (NRA, 2010) as these species have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure. The above guidelines should be consulted for management/control measures regarding these species.

Cherry Laurel is present as planted hedgerow along the site boundaries and seedlings were also observed growing within the meadow sections of the Site. Due to their being planted as part of private lands adjoining the Site of the Proposed Development, it is not possible to remove these planted ornamental hedgerows. However, further planting of this non-native species should not be included in the proposed planting schedule. The seedlings can simply be dug up when soil is moist, taking care when handling as this plant is poisonous.



Figure 12. Cherry Laurel Seedlings present at the Site. Mature Cherry Laurel can be seen in the background.

Medium impact non-native invasive species: Butterfly-bush, Winter Heliotrope (*Petasites pyrenaicus*), Himalayan Honeysuckle and Sycamore were recorded at the Site. Winter Heliotrope is a widespread coloniser of bare ground and was recorded abundantly in the east of the Site.

As noted above, there is no statutory obligation to remove any of the above species. However, should it be concluded that these species at the proposed development site should be removed, the treatment methods as described in NRA (2010) are recommended.

7.2 Operational Phase

7.2.1 Bat habitat enhancement

To increase the value of the Site of the Proposed Development for bats, 5no. Bat boxes will be erected on suitable substrates around the site, e.g., on trees if available (or walls if not),

during the operational phase of the Proposed Development, to provide novel habitat for local bat species. A qualified Ecologist will be consulted with regards the appropriate type and placement/location of these boxes.

7.2.2 Bat-friendly Night-time lighting

The impact of increased night-time lighting as a result of the Proposed Development will be mitigated through the incorporation of bat-friendly lighting measures into the project design and associated lighting plan.

In order to minimise disturbance to bats commuting/foraging in the vicinity of the Site, lighting will be designed to minimise light-spill onto boundary vegetation along the margins of the Site. This can be achieved by ensuring that the design of lighting adheres to the guidelines presented in the Bat Conservation Trust & Institute of Lighting Engineers '*Bats and Lighting in the UK - Bats and Built Environment Series*', (ILP, 2018) the Bat Conservation Trust '*Artificial Lighting and Wildlife Interim Guidance*' and the Bat Conservation Trust '*Statement on the impact and design of artificial light on bats*'. Therefore, where possible, the lighting scheme will include the following:

- The minimisation of night-time lighting emitted during both the Construction and Operational Phases of the Proposed Development (once health and safety requirements are met).
- The avoidance of direct lighting of existing or proposed treelines and hedgerows at the Site, as well as areas of planting.
- Unnecessary light spill controlled through a combination of directional lighting and hooded / shielded luminaires.
- Where appropriate, luminaires on the site boundary could be fitted with light baffles to prevent light spill onto adjacent habitats.
- Areas around the perimeter will not be lit up nor lighting directed towards it. Lighting in these areas should not increase beyond existing night-time lux levels or 1 lux, whichever is the lesser.
- Vertical light spill at light sources should be below 3m to avoid potential bat flight paths.
- No floodlighting should be used – this causes a large amount of light spillage into the sky significantly impacting bats. The spread of light should be kept below the horizontal.
- Lights should be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights.
- The source of light should be Light Emitting Diodes (LEDs) as this is a narrow beam that is highly directional and a highly energy efficient light source.

Incorporation of the appropriate luminaire specifications as advised by a lighting professional can have a considerable input in mitigating the potential impact of night-time lighting on local bats.

8 RESIDUAL IMPACTS

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated. Table 5 below provides a summary of the impact assessment for the identified Key Ecological Resources (KERs) and details the nature of the impacts identified, mitigation proposed and the classification of any residual impacts.

Standard Construction Phase control measures have been outlined to ensure that the Proposed Development does not impact on any species or habitats of conservation importance or designated sites. It is essential that these mitigation measures are complied with, to ensure that the Proposed Development complies with National conservation legislation.

Provided all mitigation measures are implemented in full and remain effective throughout the lifetime of the Proposed Development, no significant negative residual impacts on the local ecology or on any designated nature conservation sites, are expected from the Proposed Works.

Table 5. Summary of potential impacts on the identified Key Ecological Receptors KER(s) associated with the Proposed Development, mitigation proposed, and residual impacts.

Ecological Receptor	Key Ecological Receptor?	Level of Significance	Potential Impact	Impact Without Mitigation				Proposed Mitigation/ Mitigating Factors/ Enhancement	Residual Impact
				Quality	Magnitude / Extent	Duration	Significance		
Designated Sites									
European Sites	No	No significant impacts envisaged to any designated sites and therefore no mitigation required. For further detail regarding European Sites, please see the Appropriate Assessment Screening Report that accompanies this application under sperate cover.							
Dalkey Coastal Zone and Killiney Hill pNHA	Yes								
Lough-linstown Woods pNHA									
Habitats and Flora									
Vegetative Habitats (i.e., Dry Meadows GS2, Scrub WS1,	No	Local Importance (Lower Level)	Root protection zones of some trees may be impacted in the absence of mitigation	Negative	Site scale	Long-term	Significant	- Arborist Assessment (JMA, 2021) contains measures to ensure roots protection zones are protected during construction works.	Imperceptible.

Hedgerows WL1, Treelines WL2)			Proposed Development will result in an overall increase in the tree cover at the Site.	Positive	Local	Permanent	Moderate	- N/A	Positive; Per- manent; Mod- erate.
Fauna									
Small mam- mals (Hedgehog and Pygmy Shrew)	Yes	Local Im- portance (Higher Level)	Possible harm/mortality due to construction waste. Noise disturbance during the Construction Phase.	Negative Negative	Local	Short-term Short-term	Moderate Moderate	- Good practise construc- tion waste management to be followed. - Noise control measures to be in place as per PCMP.	Imperceptible. Imperceptible.
Otter	Yes	Local Im- portance (Higher Level)	Potential reduction in water quality in the Carrickmines Stream as a result of Con- struction Phase run-off.	Negative	Stretch of Carrick- mines stream down- stream of the Site	Short-term	Significant	- Measures included in the PCMP to address the generation of con- struction surface water onsite. - Measures as detailed in section 7.1.2 to be ad- hered to during the Con- struction Phase. - Suite of SUDS measures included in the project design to manage and treat oper- ational surface water.	Imperceptible.
Bats	No	Local Im- portance (Lower Level)	Possible reduction in foraging/ commuting habitat due to in- creased night-time lighting as a result of the Proposed De- velopment.	Negative	Local	Permanent	Moderate	- Incorporation of Bat friendly lighting measures, as laid out in Mitigation section, into the final Project Design.	Imperceptible. Positive; Per- manent; Mod- erate.

								- Habitat enhancement: Provision of new roosting habitat in the form of 5 bat boxes to be suitably located as part of the Proposed Development.	
Bird assemblage (Green-listed)	Yes	Local Importance (Higher Level)	Creation of nesting/foraging habitat as a result of the Proposed Development. Disturbance due to noise during Construction Phase. Harm or mortality during vegetation clearance if carried out during nesting season.	Positive Negative Negative	Local	Permanent Short-term Short-term	Moderate Slight Significant	- Construction related noise control/minimisation measures to be included in CMP. - Vegetation clearance to be conducted outside the nesting bird season i.e., outside period March 1st – August 31st.	Positive; Permanent; Moderate. Imperceptible. Imperceptible.
Fish Species	Yes	Local Importance (Higher Level)	Potential reduction in water quality in the Carrickmines Stream as a result of Construction Phase run-off.	Negative	Stretch of Carrickmines stream downstream of the Site	Short-term	Significant	- Measures included in the PCMP to address the generation of construction surface water onsite. - Measures as detailed in section 7.1.2 to be adhered to during the Construction Phase. - Suite of SUDS measures included in the project design to manage and treat operational surface water.	Imperceptible.

9 CONCLUSION

It is deemed that, provided the mitigation measures proposed are implemented in full, there will be no significant negative impact to any valued habitats, designated sites or individual or group of species as a result of the Proposed Development.

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APPENDIX I – DESK STUDY FLORA AND FAUNA RECORDS

Desk study results for records of protected, rare, or other notable flora and fauna species located in the vicinity of the Proposed Development are listed in the tables below. Relevant records from the 2km grid square containing the Site, taken within the last 30 years, are presented below.

In relation to amphibian, reptile, and mammal species, those which are protected under the Wildlife Acts, the Habitats Directive and/or are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red Lists are included. In the case of bird species, only those species listed in Annex I of the Birds Directive, or on the Birds of Conservation Concern in Ireland (BoCCI) Red List (Gilbert, Stanbury and Lewis, 2021) are included in the table below. For invertebrate species, those which are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red List are included.

Table 1. Records of protected, rare, or other notable flora and fauna species from the surrounding 2km (O22H) grid square from the NBDC. Record of Otter added as per Brazier & Macklin (2020).

Species	Date of last record	Source	Protected Designation
Cornflower (<i>Centaurea cyanus</i>)	30/06/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Regionally Extinct
Mammals			
Eurasian Badger (<i>Meles meles</i>)	13/10/2011	Road Kill Survey	- Protected Species: Wildlife Acts
European Otter (<i>Lutra lutra</i>)	2020	Triturus DLR CoCo Otter Survey	- Protected Species: EU Habitats Directive - Annex II & Annex IV - Protected Species: Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	20/04/2021	Hedgehogs of Ireland	- Wildlife Acts
Brown Long-eared Bat (<i>Plecotus auritus</i>)	01/05/2012	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV - Protected Species: Wildlife Acts
Daubenton's Bat (<i>Myotis daubentonii</i>)	17/09/2005	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV - Protected Species: Wildlife Acts
Natterer's Bat (<i>Myotis nattereri</i>)	17/09/2005	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV - Protected Species: Wildlife Acts
Lesser Noctule (<i>Nyctalus leisleri</i>)	01/05/2012	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV

			- Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	01/05/2012	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV - Protected Species: Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	01/05/2012	National Bat Database of Ireland	- Protected Species: EU Habitats Directive - Annex IV - Protected Species: Wildlife Acts
Birds			
European Golden Plover (<i>Pluvialis apricaria</i>)	31/12/2011	Bird Atlas 2007 - 2011	- Wildlife Acts - Birds Directive Annex I - BoCCI Red List
Mediterranean Gull (<i>Larus melanocephalus</i>)	31/12/2011	Bird Atlas 2007 - 2011	- Wildlife Acts - Birds Directive Annex I
Common Redshank (<i>Tringa totanus</i>)	31/12/2011	Bird Atlas 2007 - 2011	- Wildlife Acts - BoCCI Red List
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	31/12/2011	Bird Atlas 2007 - 2011	- Wildlife Acts - BoCCI Red List
Greater Scaup (<i>Aythya marila</i>)	23/11/2010	Birds of Ireland	- Wildlife Acts - BoCCI Red List
Common Kestrel (<i>Falco tinnunculus</i>)	28/12/2010	Birds of Ireland	- Wildlife Acts - BoCCI Red List
Peregrine Falcon (<i>Falco peregrinus</i>)	23/11/2010	Birds of Ireland	- Wildlife Acts - Birds Directive Annex I
Common Swift (<i>Apus apus</i>)	06/07/2010	Birds of Ireland	- Wildlife Acts - BoCCI Red List
Little Egret (<i>Egretta garzetta</i>)	19/12/2015	Birds of Ireland	- Wildlife Acts - Birds Directive Annex I
Northern Lapwing (<i>Vanellus vanellus</i>)	31/12/2011	Bird Atlas 2007 - 2011	- Wildlife Acts - BoCCI Red List
Meadow Pipit (<i>Anthus pratensis</i>)	31/12/2011	Bird Atlas 2007 - 2011	- BoCCI Red List
Amphibians			
Common Frog (<i>Rana temporaria</i>)	20/04/2020	Amphibians and reptiles of Ireland	- Habitats Directive Annex V - Wildlife Acts

APPENDIX II – VALUATION AND IMPACT CRITERIA FOR ASSESSING ECOLOGICAL RESOURCES

The criteria outlined in the table below, taken from the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* published by the NRA, were used for assigning value to designated sites, habitats and species within the Site of the Proposed Development and surrounding area.

Table A. Description of values for ecological resources based on geographic hierarchy of importance (NRA, 2009b).

Importance	Criteria
International Importance	- '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 fulfils 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. - 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) of the following: - o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or - o 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). - Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). - 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).
National Importance	- 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) of the following: - o Species protected under the Wildlife Acts; and/or - o Species listed on the relevant Red Data list. - o Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive

County Im- portance	- Area of Special Amenity. - 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) of the following: - o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. - o Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. - o Species protected under the Wildlife Acts; and/or - o Species listed on the relevant Red Data list. - o 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, 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 Im- portance (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) of the following: - o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. - o Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. - o Species protected under the Wildlife Acts. - o Species listed on the relevant Red Data list. - o 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 Im- portance (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 is of some importance in maintaining habitat links.

Criteria used to Define Quality of Effects

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying the quality of effects. See Table B below.

Table B. Definition of Quality of Effects.

Quality	Definition
Positive Effects	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
Negative / adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

Criteria used to Define Significance of Effects

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying significance of impacts. See Table C below.

Table C. Definition of Significance of Effects.

Significance of Effects	Definition
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 Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	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 Effects	An effect which obliterates sensitive characteristics

Criteria Used to Define Duration of Effects

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying duration and frequency of effects. See Table D below.

Table D. Definition of Duration of Effects.

Quality	Definition
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	Effects lasting one to seven years.
Medium-term Effects	Effects lasting seven to fifteen years.

Long-term Effects	Effects lasting fifteen to sixty years
Permanent Effects	Effects lasting over sixty years
Reversible Effects	Effects that can be undone, for example through remediation or restoration