ECOLOGICAL IMPACT ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT,

BALLYOGAN COURT, DUBLIN 18

Prepared for Dún Laoghaire-Rathdown County Council

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1. INTRODUCTION

1.1. QUALITY ASSURANCE

This report was written by Lauren Shinkwin MSc BSc (Hons) of Scott Cawley Ltd. and has been reviewed by Paul Scott CEcol CEnv MCIEEM MSc BSc (Hons).

Lauren Shinkwin holds a first class honours degree in Zoology from University College Dublin, and obtained a distinction in her Masters in Advanced Wildlife Conservation in Practice from the University of the West of England, Bristol. Lauren has professional experience working in a range of terrestrial, fresh water and marine environments in Ireland, the U.K., South Africa, and the U.S.A. Her work has included carrying out habitat surveys, invasive species surveys as well as surveying a wide variety of mammal, bird, reptile and invertebrate species. Since joining Scott Cawley, her work has included preparing AA Screening Reports, Natura Impact Statements and Ecological Impact Assessments for a wide range of projects across Ireland, including tourism, industrial, residential and renewable energy developments.

Paul Scott is Director with Scott Cawley Ltd. He holds a first class honours degree in Environmental Biology from the University of Liverpool and a Masters in Pollution and Environmental Control at the University of Manchester. He is a Chartered Ecologist and Environmentalist and a Full Member of the Chartered Institute of Ecology and Environmental Management. Paul Scott was responsible for checking and approval of this report and provided additional text where required.

1.2. BACKGROUND

Scott Cawley Ltd. was commissioned by Dún Laoghaire-Rathdown County Council to undertake an Ecological Impact Assessment (EcIA) for a proposed residential development on a site of approximately 2.4 ha located at centroid grid reference O 21024 24524, at Ballyogan Court, Dublin 18.

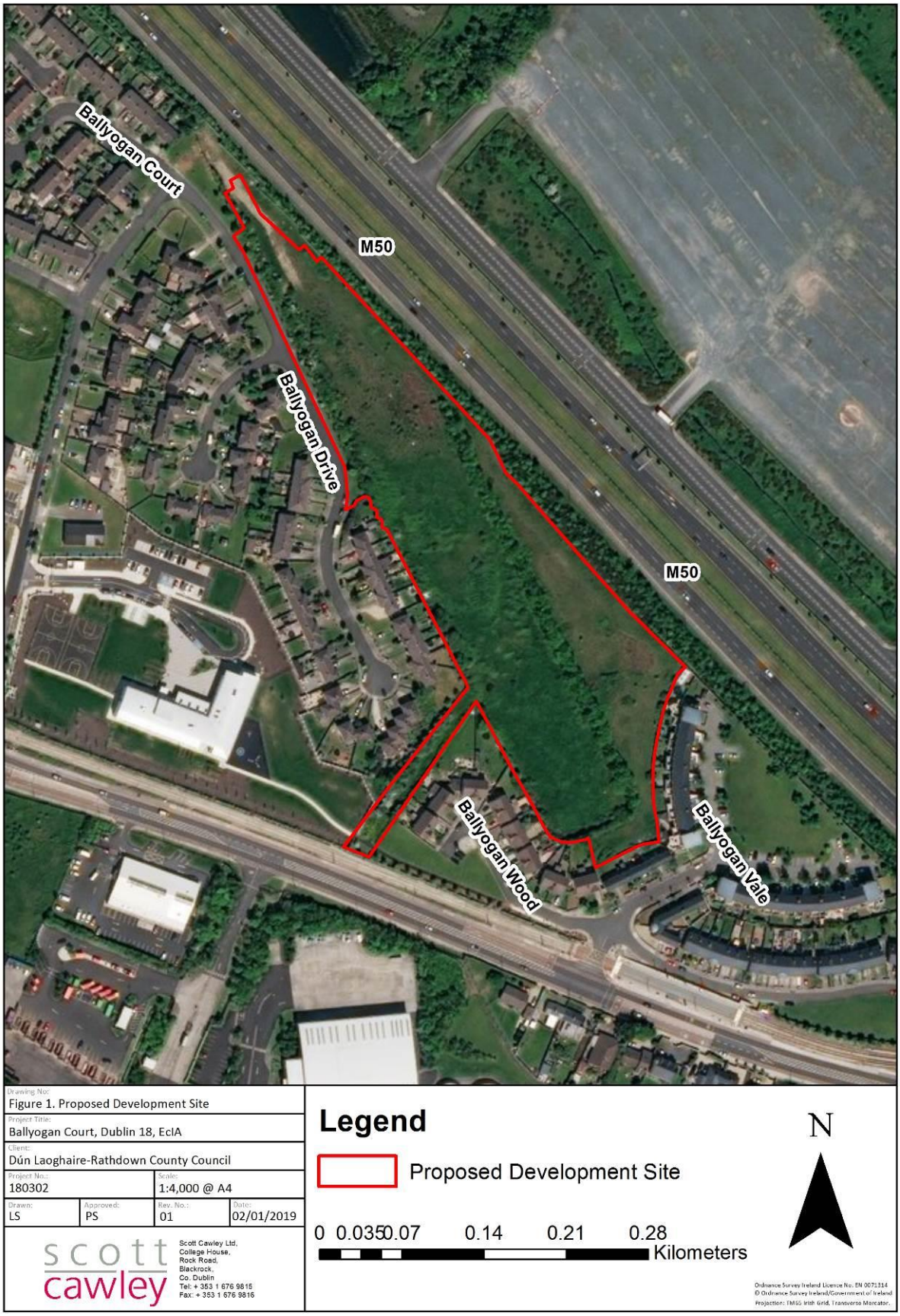
Full details of the proposed development can be found in the applicant's planning application. In brief, the proposed development will comprise of 119 residential units (59 no. two-bed houses, 8 no. three-bed houses, and 52 no. apartments over 4 storeys) and all associated infrastructure necessary to service them. This includes a network of foul water and surface water pipes, watermains, roads, footpaths and car parking (146 spaces). The duration of the development construction phase is estimated to be 2 years.

1.3. AIMS

The aims of this EcIA are to:

- Establish baseline ecological data for the proposed development site;
- Determine the ecological value of the identified ecological features;
- Assess the impact of the proposed development on ecological features of value (flora and fauna);
- Apply mitigation measures to avoid, reduce, remedy or compensate impacts; and,
- Identify any residual impacts after mitigation.

Figure 1. Proposed development in the context of its surroundings



2. PLANNING, POLICY AND LEGISLATION

The assessment of the likely impacts of the proposed development on ecological resources has considered legislation, policy documents, and guidelines outlined in the following section.

2.1. INTERNATIONAL AND NATIONAL LEGISLATION

The following international legislation is relevant to the proposed development:

- *Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended); hereafter the 'Habitats Directive'.
- *Directive 2009/147/EEC;* hereafter the 'Birds Directive'.

The following national legislation is relevant to the proposed development:

- *Wildlife Act, 1976* and *Wildlife (Amendment) Act (2000)* (as amended); hereafter collectively referred to as the Wildlife Acts. The Wildlife Acts are the principal pieces of legislation at national level for the protection of wildlife and for the control of activities that may harm wildlife. All bird species, 22 other animal species or groups of species and 86 species of flora are protected under these pieces of legislation.
- *Planning and Development (Amendment) Act 2010* (as amended). This piece of legislation is the basis for Irish Planning. Under the legislation, development plans (usually implemented at local authority level) must include mandatory objectives for the conservation of natural heritage and for the conservation of European Sites.
- *European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011* (as amended); hereafter the 'Birds and Habitats Regulations'. This legislation transposes the Habitats and Birds Directives into Irish law. It also contains regulations (49 and 50) that deal with invasive species (those included within the Third Schedule).
- *Flora (Protection) Order,* 2015. This lists species of plant protected under Section 21 of the Wildlife Act, 1976.

2.2. LOCAL AUTHORITY PLANS

The local authority for the proposed residential development at Ballyogan Court, Dublin 18 is Dún Laoghaire-Rathdown County Council (DLRCC). Plans and developments within Dún Laoghaire-Rathdown County must comply with the policies and objectives of the *Dún Laoghaire-Rathdown County Development Plan 2016 – 2022* (DLRCC, 2016), which in turn references the *National Biodiversity Plan 2017-2021* (DAHG, 2017), and the *Dún Laoghaire-Rathdown Biodiversity Plan 2009-2013* (DLRCC, 2009).

2.2.1. Dún Laoghaire-Rathdown County Council Development Plan 2016-2022 Policies

The following policies from the *Dún Laoghaire-Rathdown County Development Plan 2016-2022* (DLRCC, 2016) are relevant to the proposed development as several designated sites are within the downstream receiving environment, and due to the potential for the site to host protected species, hedgerows and/or invasive species.

LHB19: Protection of Natural Heritage and the Environment – *It is council policy to protect and conserve the environment including, in particular, the natural heritage of the County and to conserve and manage Nationally and Internationally important and EU designated sites – such as Special Protection Areas, candidate Special Areas of Conservation, proposed Natural Heritage Areas and Ramsar sites – as well as non-designated areas of high nature conservation value which serve as 'Stepping Stones' for the purposes of Article 10 of the Habitats Directive*

LHB20: Habitats Directive – *It is council policy to ensure the protection of natural heritage and biodiversity, including European sites that form part of the Natura 2000 network, in accordance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines.*

LHB22: Designated Sites – *It is council policy to protect and preserve areas designated as proposed Natural Heritage Areas, candidate Special Areas of Conservation, and Special Protection Areas. It is Council Policy to promote the maintenance and as appropriate, delivery of 'favourable' conservation status of habitats and species within these areas.*

LHB23: Non-Designated Areas of Biodiversity Importance – *It is council policy to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance – including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, and rare species – are adequately protected. Ecological assessment will be carried out for all developments in areas that support, or have potential to support, features of biodiversity importance or rare and protected species and appropriate mitigation/avoidance measures will be implemented. In implementing this policy regard shall be had to the recommendation and objectives of the Green City Guideline (2008) and 'Ecological Guidance Notes for Local Authorities and Developers' (Dún Laoghaire-Rathdown Version 2014).*

LHB26: Hedgerows – *It is council policy to protect hedgerows in the county from development, which would impact adversely upon them. It is council policy to promote the county's hedgerows by increasing coverage, where possible, using locally native species and to develop an appropriate code of practice for road hedgerow maintenance.*

LHB29: Invasive Species – *It is council policy to support as appropriate the National Parks and Wildlife Service efforts to seek to control and manage alien / invasive species (e.g. Japanese knotweed, Giant Hogweed, Himalayan Balsam, etc.) and noxious weeds (e.g. Ragwort, Thistle, Dock, etc.) within the county.*

3. METHODOLOGY

3.1. SCOPE

The zone of influence[1] of the proposed development is a distance within which it could potentially affect key ecological receptors (KERs)[2]. There is no set recommended distance for the zone of influence of a project, and it is likely to vary according to the KER in question. The potential zone of influence of the proposed development is regarded to be relatively limited and less than 1km from the site perimeter in most cases (with the exception of European sites).

3.2. DESK STUDY

A desk study was undertaken to collect any available information on the local ecological environment. The following resources assisted in the production of this report, in addition to those listed in the "*Reference*" section of this report:

- Ordnance Survey Ireland mapping and aerial photography www.osi.ie – Utilised for desk review of potential habitats within the subject lands and their surroundings;
- National Parks and Wildlife Service (NPWS) mapviewer www.npws.ie/npwsviewer – Accessed for information on the site and local protected sites;
- Data on local river catchments from www.catchments.ie – Accessed for details on local rivers and the catchments they drain into were queried;
- Myplan.ie website http://www.myplan.ie/webapp/ – Accessed to retrieve information on local land zoning;
- Data on species that are rare, protected or threatened located within the zone of influence of the proposed development, as held by the National Biodiversity Data Centre www.biodiversityireland.ie – A query for the aforementioned species within a 2km radius of the subject lands;
- *Birds of Conservation Concern in Ireland* (Colhoun & Cummins, 2013) – Consulted for information on the status of birds in Ireland; and,
- Information on the location, nature and design of the proposed development supplied by the applicant's design team.

3.3. FIELD SURVEY METHODOLOGY

3.3.1. Habitats & Flora Survey

The subject lands and environs were surveyed by Scott Cawley. A habitat survey was conducted on 4th January 2019. All habitats were classified using the *Guide to Habitats in Ireland* (Fossitt, 2000),

[1] In accordance with NRA (2009) guidelines, the Zone of Influence is an important term to define the receiving environment for the activities associated with the project and the biophysical changes that are likely to occur. The Zone of Influence is the 'effect area' over which change is likely to occur. This differs for different species and habitats due to varying sensitivities to potential impacts.

[2] KERs are defined in accordance with NRA guidelines (2009) as being '*both of sufficient value to be material in decision making and likely to be affected significantly*'. To qualify as KERs, features must be of local Importance (higher value) or higher as per the criteria in Appendix 1.

recording dominant species, indicator species and/or species of conservation interest; with the Fossitt category codes given in parentheses. Plant nomenclature follows the *Checklist of the Flora of Britain & Ireland (BSBI, 2007)*[3].

3.3.2. Fauna Survey

Fauna were surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings, as well as by direct observation. The habitats on site were assessed for signs of usage by protected/red-listed fauna species, and potential to hold these species.

Bird Surveys

Bird activity on the site was noted during the multidisciplinary survey of the site on 4th January 2019. The conservation status of the bird species recorded was as per the current *Birds of Conservation Concern in Ireland* (BoCCI) list. This classifies bird species into categories; "Red List" birds of high conservation concern, "Amber List" birds of medium conservation concern and "Green List" birds, not considered threatened (Colhoun & Cummins, 2013).

No breeding bird surveys were carried out on-site as January (the time of the multidisciplinary survey) falls outside of the optimum season for surveying breeding birds which is between early March and late June. However, a precautionary approach has been adopted towards the use of the site by breeding birds.

Bat Surveys

The trees within the subject lands were assessed for their suitability for roosting bats, having regard to the following guidelines:

- *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016);
- *Bat Mitigation Guidelines for Ireland* (NPWS, 2006); and,
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (NRA, 2006).

A number of trees located across the proposed development site were examined from ground level for potential bat roosts. They were assessed based on the presence of features commonly used by bats. Examples of such features include:

- Natural holes;
- Woodpecker holes;
- Cracks/splits in major limbs;
- Loose bark; and,
- Hollows/cavities.

Trees were categorised according to the criteria described below in Table 1.

[3] This is the most up to date Botanical Society of Britain and Ireland Checklist that is currently available.

Table 1: Assessing the value of trees to bats (derived from Hundt, 2012)

Tree Category	Description
Suitable	Trees with multiple, highly suitable features capable of supporting larger roosts; Trees with definite bat potential, with potential for use by at least single bats; Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.
Unsuitable	Trees with no potential to support bats.

No bat activity surveys were carried out on-site as January falls outside of the optimum season for monitoring bat activity (May to August inclusive). However, a precautionary approach has been adopted towards the use of the site by roosting, foraging and commuting bats.

3.3.3. Limitations of Field Surveys / Data Deficiencies

The habitats and flora survey was undertaken outside of the optimal survey season for higher plants, generally the period between May and June depending on the species group. However, this is not considered to be a significant limitation in this instance due to the habitat types present within the subject lands and the limited potential for the site to host flora or habitats of ecological interest.

Breeding bird surveys and bat activity surveys were not carried out given the timing of the field visit (January lies outside the optimum survey season for both survey types). This limitation has been addressed through the adoption of a precautionary approach and recommendation of specific mitigation measures.

Several large areas of dense bramble were located within the proposed development site, as illustrated in the habitat map (Figure 4). Due to the density of the bramble not all areas could be searched thoroughly for signs of mammals. This limitation has been addressed through the adoption of a precautionary approach and recommendation of mitigation measures.

The access laneway to the south west of the site could not be accessed, however, based on aerial photography, this section of land likely contains similar habitat to those adjacent to it within the proposed development site, i.e. scrub (WS1) and dry meadows and grassy verges (GS2).

The data for species records held by record centres and statutory bodies (such as National Parks and Wildlife Service) is often provided on an *ad-hoc* basis by recorders. These records can only provide an indication of what species might be found in an area; they do not constitute full and complete species lists. Absence of certain species from these sources does not confirm absence of species in the area.

3.4. ECOLOGICAL EVALUATION AND IMPACT ASSESSMENT

3.4.1. Site Evaluation Criteria

The criteria used to assess the ecological value (Appendix 1) and significance of the site for habitats and species follows *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009) and is consistent with *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

3.4.2. Impact Assessment Criteria

In accordance with *NRA guidelines* (2009), impact assessment is only undertaken of '*key ecological receptors*' (KERs). KERs are within the zone of influence[4] of the development and are '*both of sufficient value to be material in decision making and likely to be affected significantly*'. To qualify as KERs, features must be of local Importance (higher value) or higher as per the criteria in Appendix 1. Features of lower ecological value are not assessed. The highest levels of impact significance for each key ecological receptor 'value' rating are shown in Table 2.

Table 2 - Maximum level of impact significance for Key Ecological Receptors

Key Ecological Receptor 'value' rating	Highest possible significance level
International Importance	Significant Positive/ Negative impact at International level
National Importance	Significant Positive/ Negative impact at National level
County Importance	Significant Positive/ Negative impact at County level
Local Importance (higher value)	Significant Positive/ Negative impact at Local level

Impacts are described as being either significant or not significant. Broadly, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution) (CIEEM, 2016). In this instance, effects are qualified with reference to a geographic scale as outlined in Appendix 1 of this report.

4. DESCRIPTION OF EXISTING ENVIRONMENT

4.1. LAND USE ZONING

The subject lands fall within the area of the *Dún Laoghaire-Rathdown County Development Plan 2016 – 2022,* and are currently zoned as '*Objective A'* which has the zoning objective *'To protect and-or improve residential amenity' (*DLRCC, 2016). The majority of the surrounding lands fall under the same zoning type, however, there are small areas of land to the north and south of the proposed site, which are zoned as '*Objective F'* with the objective '*To preserve and provide for open space with ancillary active recreational amenities'.*

4.2. DESIGNATED SITES

Special Areas of Conservation (SAC) are designated under the EC Habitats Directive (92/43/EEC), as amended, which is transposed into Irish law through a variety of legislation including the Birds and Habitats Regulations and the Planning and Development Acts. The legislation enables the protection of certain habitats (listed on Annex I of the Directive) and/or species (listed on Annex II). Special Protection Areas (SPAs) are designated under the Birds Directive (2009/147/EC). This allows for the protection of protected bird species listed on Annex I of the Directive, regularly occurring populations of migratory species (such as ducks, geese or waders), and areas of international importance for migratory birds.

[4] In accordance with NRA (2009) guidelines, the Zone of Influence is an important term to define the receiving environment for the activities associated with the project and the biophysical changes that are likely to occur. The Zone of Influence is the 'effect area' over which change is likely to occur. This differs for different species and habitats due to varying sensitivities to potential impacts.

National Heritage Areas (NHAs) are designations under the Wildlife Acts in order to protect habitats, species or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with Natura 2000 sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning legislation which requires that planning authorities give recognition to their ecological value.

The subject lands are not designated as an SAC, SPA, NHA, or pNHA, however, potential pathways of connectivity between the subject lands and designated sites have been identified. A separate AA Screening assessment by Scott Cawley (*Provision of Information for Screening for Appropriate Assessment*, *Proposed Development, Ballyogan Court, Dublin 18*) accompanies this planning application.

The closest European sites are South Dublin Bay SAC (000210) and South Dublin Bay and River Tolka Estuary SPA (004024) which are approximately 4.8km north of the proposed development site, however there is no source-pathway-receptor link to these sites. The closest (and only) European site for which a source-pathway-receptor link exists is Rockabill to Dalkey Island SAC (003000 which is approximately 6.4km east of the proposed development site. The closest pNHA, for which there is a source-pathway-receptor link, is Loughlinstown Woods pNHA [001211] which is *ca*. 3.6km south-east of the proposed development.

A list of designated sites within the vicinity of the proposed development, along with their qualifying interests, is included in Table 3, overleaf. The locations of these designated sites in relation to the proposed development are illustrated in Figure 2 and Figure 3, overleaf.

There are two pNHAs within the zone of influence of the proposed development site; Dalkey Coastal Zone and Killiney Hill pNHA (001206) and Loughlinstown Woods pNHA (001211). The only potential impact pathway between the proposed development site and these pNHAs is the hydrological linkage via the surface water network (both sites) and the foul water network (in the case of Dalkey Coastal Zone and Killiney Hill pNHA). Sites shown on Figure 3 and not listed in Table 2 are considered to fall well outside the zone of influence of the proposed development due to their distance from the proposed development site and lack of source-pathway-receptor links, mainly hydrological.

Given the proximity of nationally and European designated sites, they have been considered as a Key Ecological Receptor.

Figure 2. European sites within the vicinity of the proposed development site

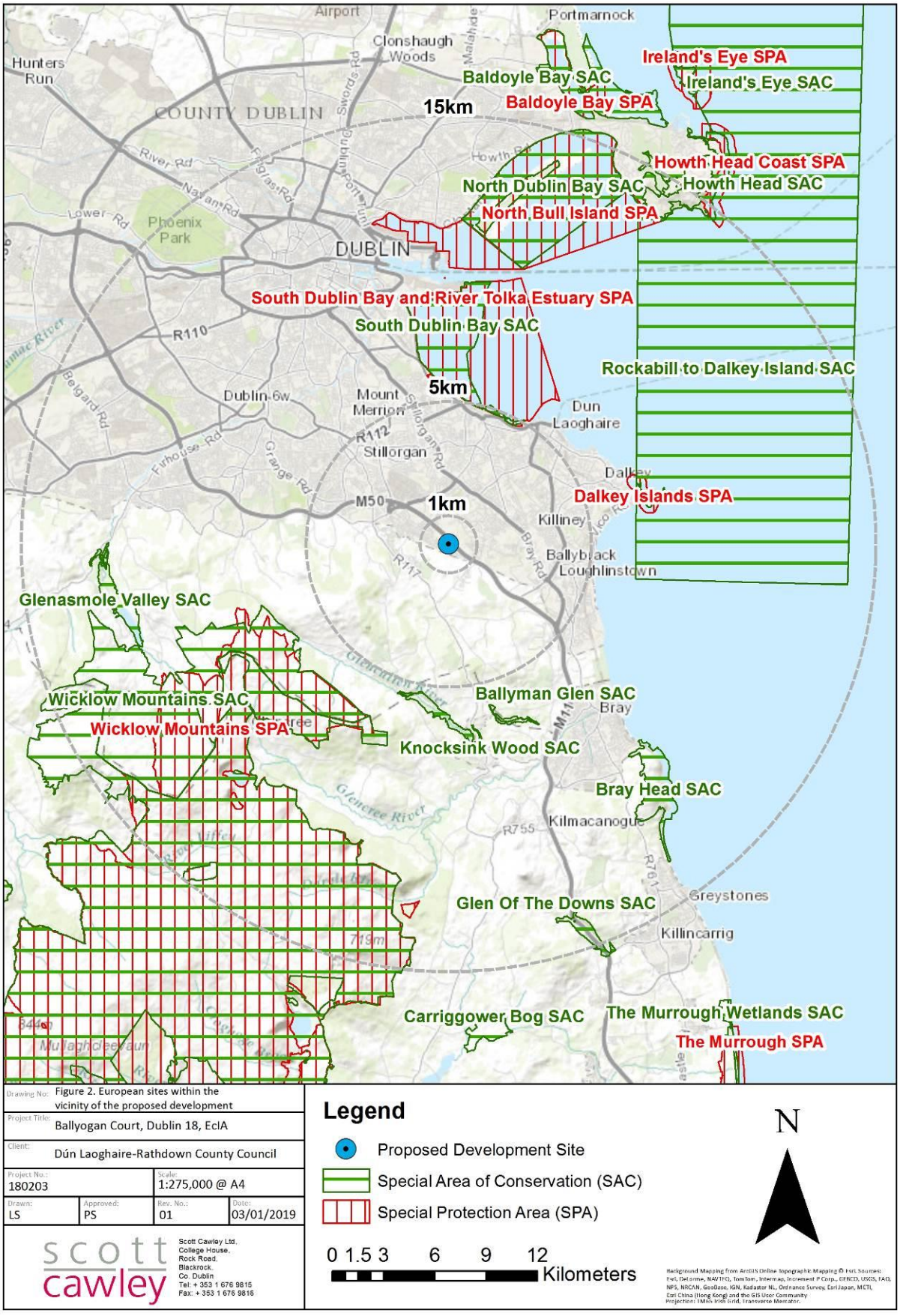


Figure 3. Nationally designated sites within the vicinity of the proposed development site

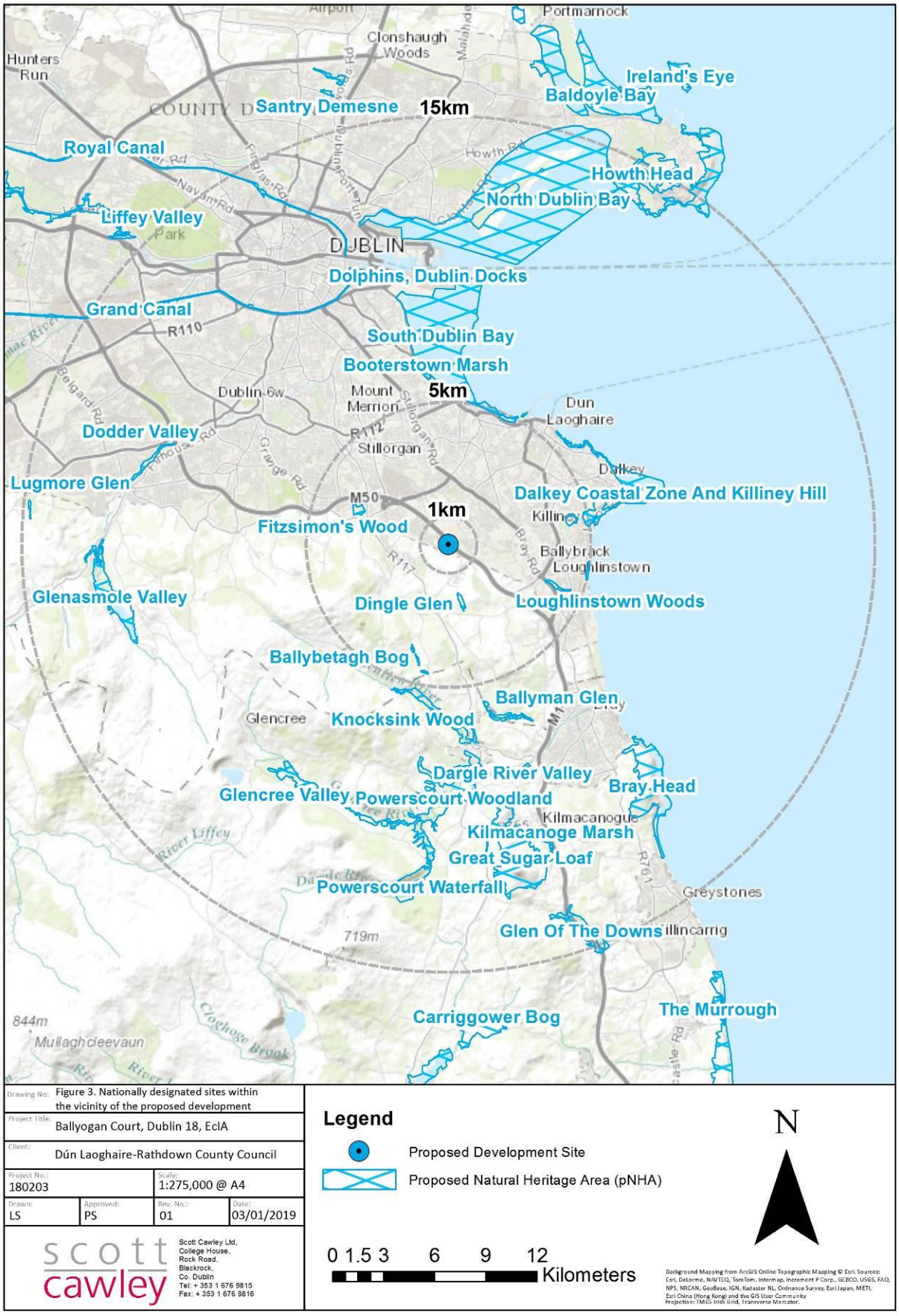


Table 3. SACs, SPAs and pNHAs located within the vicinity of the proposed development site.

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
Special Areas of Conservation (SAC)		
South Dublin Bay SAC [000210]	*ca.* 4.8km north	**Conservation Objectives Version 1.0 (22/08/13)** **Annex I Habitats :** Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]
Knocksink Wood SAC [000725]	*ca.* 5.2km south-west	**Conservation Objectives Generic Version 6.0 (21/02/18)** **Annex I Habitats:** *Petrifying springs with tufa formation (*Cratoneurion*) [7220] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]
Ballyman Glen SAC [000713]	*ca.* 5.6km south-east	**Conservation Objectives Generic Version 6.0 (21/02/18)** **Annex I Habitats:** *Petrifying springs with tufa formation (*Cratoneurion*) [7220] Alkaline fens [7230]
Wicklow Mountains SAC [002122]	*ca.* 6.3km south-west	**Conservation Objectives Version 1 (31/07/17)** **Annex I Habitats:** Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]

[5] "Qualifying Interests" for SACs and "Special Conservation Interests" for SPAs based on relevant Statutory Instruments for each SPA, and NPWS Conservation Objectives for SACs downloaded from www.npws.ie in October 2018.

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
		Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with *Erica tetralix* [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Calaminarian grasslands of the Violetalia calaminariae [6130] Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in Continental Europe) [6230] Blanket bogs (* if active only) [7130] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110] Calcareous rocky slopes with chasmophytic vegetation [8210] Siliceous rocky slopes with chasmophytic vegetation [8220] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] **Annex II Species:** Otter - *Lutra lutra* [1355]
Rockabill to Dalkey Island SAC [003000]	*ca.* 6.4km east	**Conservation Objectives Version 1.0 (07/05/13)** **Annex I Habitats:** [1170] Reefs **Annex II Species:** [1351] Harbour porpoise *Phocoena phocoena*
Bray Head SAC [000714]	*ca*. 9.3km south-east	**Conservation Objectives Version 1.0 (11/04/17)** **Annex I Habitats :**

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
		Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]
North Dublin Bay SAC [000206]	*ca.* 10km north-east	**Conservation Objectives Version 1.0 (06/11/13)** **Annex I Habitats:** Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] *Salicornia* and other annuals colonizing mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") [2120] *Fixed coastal dunes with herbaceous vegetation ("grey dunes") [2130] Humid dune slacks [2190] **Annex II Species:** Petalwort (*Petalophyllum ralfsii*) [1395]
Glenasmole Valley SAC [001209]	*ca.* 11.3km south-west	**Conservation Objectives Generic Version 6.0 (21/02/18)** **Annex I Habitats :** Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (* important orchid sites) [6210] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] * Petrifying springs with tufa formation (*Cratoneurion*) [7220]
Glen of the Downs SAC [000719]	*ca*. 13.3km south-east	**Conservation Objectives Generic Version 6.0 (21/02/18)** **Annex I Habitats :** Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
Howth Head SAC [000202]	*ca.* 13.5km north-east	**Conservation Objectives Version 1.0 (06/12/16)** **Annex I Habitats:** Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]
Special Protection Areas (SPA)		
South Dublin Bay and River Tolka Estuary SPA [004024]	*ca*. 4.8km north-east	**Conservation Objectives Version 1.0 (09/03/15)** Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] [wintering] Oystercatcher (*Haematopus ostralegus*) [A130] [wintering] Ringed Plover (*Charadrius hiaticula*) [A137] [wintering] Grey Plover (*Pluvialis squatarola*) [A140] [wintering] Knot (*Calidris canutus*) [A143] [wintering] Sanderling (*Calidris alba*) [A144] [wintering] Dunlin (*Calidris 15etanu*) [A149] [wintering] Bar-tailed Godwit (*Limosa lapponica*) [A157] [wintering] Redshank (*Tringa 15etanus*) [A162] [wintering] Black-headed Gull (*Croicocephalus ridibundus*) [A179] [wintering] Roseate Tern (*Sterna dougallii*) [A192] [passage] Common Tern (*Sterna hirundo*) [A193] [breeding] Arctic Tern (*Sterna paradisaea*) [A194] [passage] Wetlands & Waterbirds [A999]
Wicklow Mountains SPA [004040]	*ca.* 6.5km south-west	**Conservation Objectives Generic Version 6.0 (21/02/18)** Merlin (*Falco columbarius*) [A098] [breeding] Peregrine (*Falco peregrinus*) [A103] [breeding]
Dalkey Islands SPA	*ca.* 6.5km	**Conservation Objectives Generic Version 6.0 (21/02/18)**

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
[004172]	north-east	Roseate Tern *Sterna dougallii* [A192] [passage] Common Tern *Sterna hirundo* [A193] [passage] Arctic Tern *Sterna paradisaea* [A194] [passage]
North Bull Island SPA [004006]	*ca.* 10km north-east	**Conservation Objectives Version 1.0 (09/03/15)** Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] [wintering] Shelduck (*Tadorna tadorna*) [A048] [wintering] Teal (*Anas crecca*) [A052] [wintering] Pintail (*Anas acuta*) [A054] [wintering] Shoveler (*Anas clypeata*) [A056] [wintering] Oystercatcher (*Haematopus ostralegus*) [A130] [wintering] Golden Plover (*Pluvialis apricaria*) [A140] [wintering] Grey Plover (*Pluvialis squatarola*) [A141] [wintering] Knot (*Calidris canutus*) [A143] [wintering] Sanderling (*Calidris alba*) [A144] [wintering] Dunlin (*Calidris alpina*) [A149] [wintering] Black-tailed Godwit (*Limosa limosa*) [A156] [wintering] Bar-tailed Godwit (*Limosa lapponica*) [A157] [wintering] Curlew (*Numenius arquata*) [A160] [wintering] Redshank (*Tringa totanus*) [A162] [wintering] Turnstone (*Arenaria interpres*) [A169] [wintering] Black-headed Gull (*Croicocephalus ridibundus*) [A179] [wintering] Wetlands & Waterbirds [A999]
Howth Head Coast SPA [004113]	*ca.* 14.6km north-east	**Conservation Objectives Generic Version 6.0 (21/02/18)** Kittiwake (*Rissa tridactyla*) [A188] [breeding]

Site name and code	Distance from proposed development (approximate)	Reasons for designation[5] (*= Priority Habitat)
Proposed Natural Heritage Areas (pNHA) [6]		
Dalkey Coastal Zone and Killiney Hill pNHA [001206]	*ca.* 4.2km east	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 interesting species. The islands are important bird sites and are known nesting and roosting areas for many species including Herring Gulls, Great Black-backed Gull, Lesser Black-backed Gull, Shelduck, Fulmar, Mallard, Oystercatcher, Cormorants, Shag, Curlew and various Tern species (Common, Arctic and Roseate). Dalkey Sound is noteworthy for the occurrence of many coastal invertebrate species including squat lobsters (*Galathea* spp.), swimming crabs (*Portunus* spp.) and the crawfish *Palinurus vulgaris* as well as rare European species of the Order Nudibranchia and the Spiny Starfish (*Marthasterias glacialis*). The site is also classified for its geological importance.
Loughlinstown Woods pNHA [001211]	*ca.* 3.6km south-east	This site is a good example of demesne-type mixed woodland. It is now used chiefly for amenity purposes. Species typically include Beech (*Fagus sylvatica*), Sycamore (*Acer pseudoplatanus*), elm (*Ulmus spp*.), Holly (*Ilex aquifolium*) and Cherry Laurel (*Prunus laurocerasus*). Giant Hogweed (*Heracleum mantegazzianum*) has spread along the banks of the river.

[6] Where available, reasons for designation for pNHAs have been interpreted from information in Site Synopses available online from the NPWS.

4.3. HABITATS AND FLORA

The National Biodiversity Data Centre (NBDC) database search returned one records of a protected flora species under the Flora (Protection) Order 2015 within 2km of the subject lands; wild asparagus *Asparagus prostratus.* No protected or rare flora species were specifically recorded within the boundary of the subject lands during the site survey on 4th January 2019.

The NBDC database search returned records of the following invasive species listed on the Third Schedule of the Birds and Habitats Regulations within 2km of the subject lands;

- Three-cornered garlic *Allium triquetrum*
- Nuttall's waterweed *Elodea nuttallii*
- Japanese knotweed *Fallopia japonica*
- Giant hogweed *Heracleum mantegazzianum*
- American skunk-cabbage *Lysichiton americanus*
- Rhododendron *Rhododendron ponticum*

No non-native invasive plant species listed of the Third Schedule of the Birds and Habitats Regulations were recorded within the proposed development site during the site survey on 4th January 2019. The following invasive species, which are not listed on Third Schedule of the Birds and Habitats Regulations, were identified during the site survey:

- Butterfly bush *Buddleja davidii*
- Winter Heliotrope *Petasites fragrans*
- Cotoneaster *Cotoneaster sp.*
- Old man's beard *Clematis vitalba*
- Cherry laurel *Prunus laurocerasus*

The following habitat types of the Heritage Council classification system (Fossitt, 2000) were identified within the Study Area and subject lands as mapped in Figure 4. The habitats recorded within the subject lands (area of *ca.* 2.4 ha) were:

- GS2 - Dry Meadows and Grassy Verges
- GS4 - Wet Grassland
- WS1 - Scrub
- WL2 - Treeline
- WL1 - Hedgerow
- ED3 - Recolonising Bare Ground
- BL3 - Buildings and Artificial Surfaces

4.3.1. Dry Meadow and Grassy Verges (GS2)

This habitat type is found across the proposed development site with large areas of dry meadow located in the east and south of the site as well as a large area of mosaic habitat comprising dry

meadow and scrub (WS1/GS2) in the middle of the site. A small strip is also located in the north of the site. Abundant species found in this habitat type include Yorkshire fog *Holcus lanatus,* red fescue *Festuca rubra,* cock's foot grass *Dactylis glomerata* and false oat grass *Arrhenatherum elatius.* Frequently occurring species include creeping thistle *Cirsium arvense* and occasionally occurring species include creeping cinquefoil *Potentilla reptans,* bush vetch *Vicia sepium,* white clover *Trifolium repens,* dandelion *Taraxacum officinale,* broad leafed dock *Rumex obtusifolius* and curly dock *Rumex crispus.* Rarely occurring species include, cow parsley *Anthriscus sylvestris,* creeping buttercup *Ranunculus repens*, meadow vetchling *Lathyrus pratensis,* ribwort plantain *Plantago lanceolate,* yarrow *Achillea millefolium,* ragwort *Jacobaea vulgaris,* spear thistle *Cirsium vulgare* and winter heliotrope *Petasites fragrans*.

This habitat is assessed as being of local ecological importance (lower value).

Plate 1. Section of mosaic habitat of dry meadow and grassy verges and scrub located in the middle of the proposed development site.

4.3.2. Wet Grassland (GS4)

Several areas of wet grassland habitat were identified within the proposed development site. The largest area of wet grassland is located in the north of the site which transitions in a southerly direction into a mosaic habitat of wet grassland and scrub. A smaller patch of wet grassland is also located in the eastern section of the proposed development site. Abundant species found in this habitat type include soft rush *Juncus effusus*, jointed rush *Juncus articulatus* and red fescue. Frequently occurring species include old man's beard *Clematis vitalba*, glaucous sedge *Carex flacca,* yarrow, ribwort plantain, creeping buttercup and creeping cinquefoil. Rarely occurring species include common reed *Phragmites australis.*

This habitat is assessed as being of local ecological importance (lower value).

Plate 2. Wet grassland habitat located in the north of the proposed development site.

4.3.3. Scrub (WS1)

Areas of scrub are located throughout the proposed development site along boundary walls and as part of large areas of mosaic habitat with grasslands. Bramble *Rubus fructicosus* is the dominant species within this habitat type. Occasionally occurring species include butterfly bush *Buddleja davidii* and gorse *Ulex europaeus* and rarely occurring species include dogwood *Cornus sp.* and dog rose *Rosa canina.*

This habitat is assessed as being of local ecological importance (lower value).

Plate 3. Scrub habitat along the western boundary wall of the proposed development site.

4.3.4. Treeline (WL2)

Treeline habitat is located in patches along the western boundary wall, including a section of mosaic habitat consisting of hedgerow and treeline, and continuously along the western side of the wall which runs through the middle of the site from north to south (as illustrated in Figure 4).

Abundantly-occurring species within the treeline habitat include ash *Fraxinus excelsior* and Scots pine *Pinus sylvestris*. Frequently occuring species include hazel *Corylus avellana* and occasionally occurring species include willow varieties *salix sp.* The understorey of the treeline comprises bramble, dogwood, New Zealand broadleaf *Griselinia littoralis* and cotoneaster *Cotoneaster sp.* The trees within the proposed development site are predominantly semi-mature and no potential bat roost features were identified in any of the trees at the time of the survey, however, the treelines may provide linear habitat for foraging and commuting bats. They may also be of importance for nesting birds during the breeding season.

This habitat is assessed as being of local ecological importance (higher value).

Plate 4. Tree line along the wall which runs through the middle of the site (photograph taken in the south of the site facing northwards).

4.3.5. Hedgerow (WL1)

This habitat is located along the north western boundary of the proposed development site where it is forms part of the mosaic habitat hedgerow and treeline (WL1/WL2). Species within this habitat type include cherry laurel *Prunus laurocerasus* and New Zealand broadleaf. The hedgerow habitat forms part of a linear feature which may provide habitat for foraging and commuting bats. The hedgerow may also be of importance for nesting birds during the breeding season.

This habitat is assessed as being of local ecological importance (higher value).

4.3.6. Recolonising Bare Ground (ED3)

This habitat is confined to the northern tip of the proposed development site. It comprises of the same species as the adjacent dry meadow and grassy verges habitat (GS2). To note, domestic refuse is present within this section of the proposed development site.

This habitat is assessed as being of local ecological importance (lower value).

Plate 5. Recolonising bare ground in the northern tip of the proposed development site.

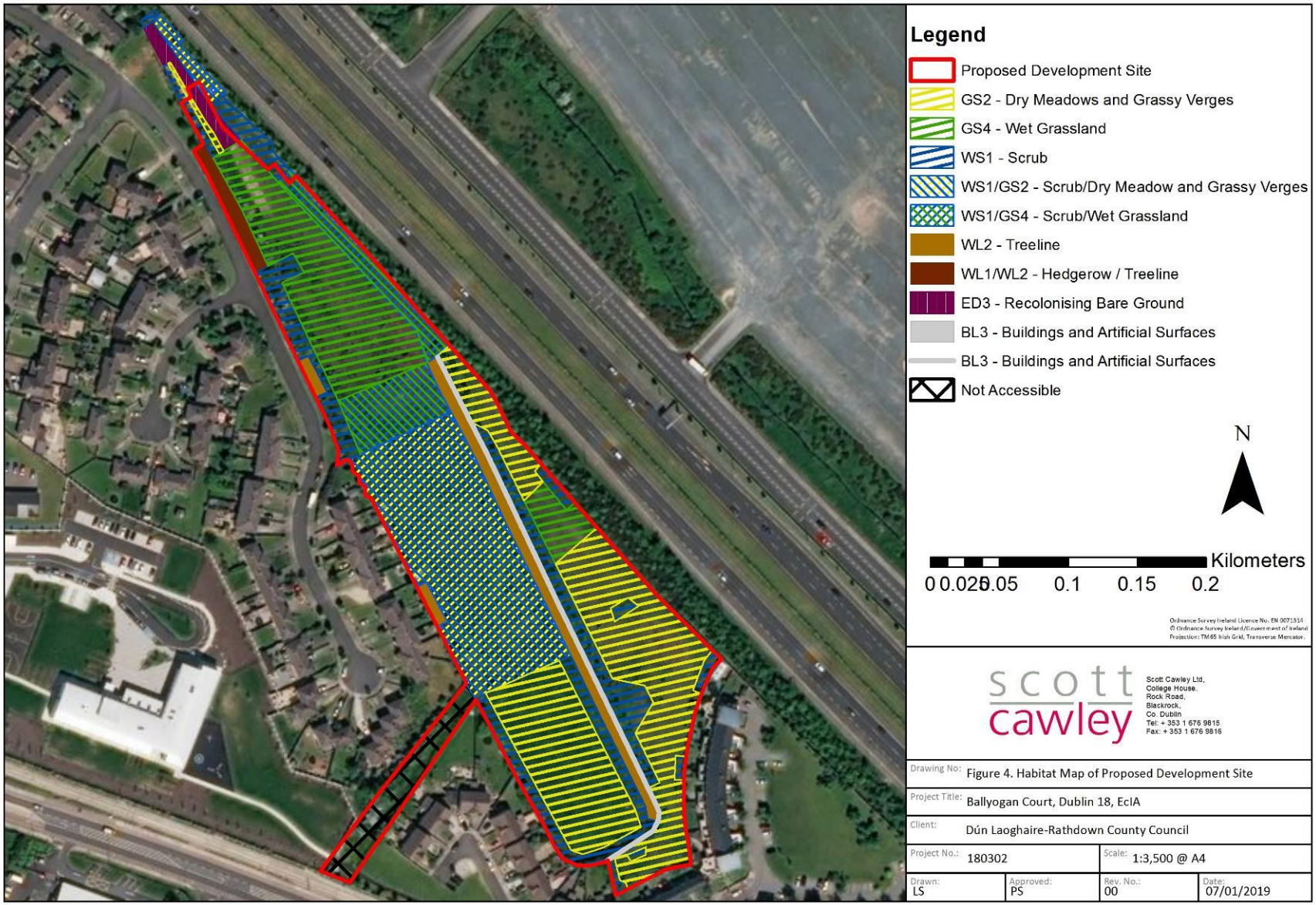
4.3.7. Buildings and Artificial Surfaces (BL3)

This habitat comprises of the wall which runs through the middle of the site from north to south, separating the eastern section of the proposed development site from the rest of the site. A boundary wall also exists around the majority of the proposed development site perimeter (the red line boundary deviates in from the boundary wall in the north east of the site). An open manhole is located within the walled boundary in the north east of the site but lies outside of the redline boundary (Irish Grid Reference O 20920 24686).

This habitat is assessed as being of local ecological importance (lower value).

Plate 6. Boundary wall and open manhole in the north east of the site.

Figure 4 – Habitat Map



4.4. FAUNA

4.4.1. Birds

A search of the NBDC database returned records of 154 bird species within 2km of the proposed development site, including 63 species included on the amber list and 16 species included on the red list of species of Birds of Conservation Concern in Ireland 2014-2019 (Colhoun & Cummin, 2013). Red-listed species are those of highest conservation priority, being globally threatened, declining rapidly in abundance or range, or having undergone historic declines from which they have not recently recovered. Amber-listed species have an unfavourable status in Europe, have moderately declined in abundance or range, a very small population size, a localised distribution, or occur in internationally important numbers (Colhoun & Cummin, 2013).

Five bird species were recorded within the boundaries of the proposed development site during the site visit on 4th January 2019, two of which are BoCCI amber listed species; starling *Sturnus vulgaris* and robin *Erithacus rubecula*. The remaining three species are BoCCI green listed species; blue tit *Cyanistes caeruleus*, magpie *Pica pica* and bullfinch *Pyrrhula pyrrhula.*

As a precautionary approach, due to the potential suitability of the proposed development site for breeding birds, the value of the site for birds has been valued as being of local ecological importance (higher value).

4.4.2. Bats

During the desk study, the NBDC database returned records of the following bat species within 2km of the proposed development; Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, Leisler's bat *Nyctalus leisleri*, brown long-eared bat *Plecotus auritus*, Soprano pipistrelle *Pipistrellus pygmaeus*, common pipistrelle *Pipistrellus pipistrellus* and unidentified pipistrelle species *Pipistrellus pipistrellus sensu lato.*

Bats, and their breeding and resting places, are protected under the Wildlife Acts. All bat species are also listed on Annex IV of the EU Habitats Directive and are afforded strict protection under the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations, 2011.

Trees within the site were checked for features that could be used as potential bat roosts, which include: flaking bark, knot holes, cavities, broken limb and dense ivy cover. None of the trees onsite were deemed suitable to host roosting bats.

Whilst the trees do not offer suitable features for roosting, they may be of importance as a linear landscape feature for foraging and commuting bats. As a precautionary approach, due to the potential suitability of vegetation within the subject land for bat activity, the value of the site for bats has been valued as being of local ecological importance (higher value).

4.4.3. Other Terrestrial Mammals

A review of records held by the NBDC returned records of the following terrestrial mammal species protected under the Wildlife Acts (As Amended) within 2km of the proposed development site and construction compound area:

- West European hedgehog *Erinaceus europaeus*: listed as 'least concern' in Ireland (Marnell et al., 2009).
- Eurasian pygmy shrew *Sorex minutus*: listed as 'least concern' in Ireland (Marnell et al., 2009).
- Eurasian badger *Meles meles*: listed as 'least concern' in Ireland (Marnell et al., 2009).
- Red deer *Cervus elaphus*: listed as 'least concern' in Ireland (Marnell et al., 2009).
- European otter *Lutra lutra*: listed as 'near threatened' in Ireland (Marnell et al., 2009). This species is also protected under the European Habitats Directive where it is listed on Annex II.

No evidence of any terrestrial mammals was recorded during the site visit, however the presence of large areas of impenetrable bramble prohibited a thorough search of all areas on the site and therefore the potential for the site to host badger, pygmy shrew or hedgehog cannot be ruled out. A precautionary approach has been taken and the site has been valued as being of local ecological importance (higher value) for terrestrial mammals.

4.5. SUMMARY OF KEY ECOLOGICAL FEATURES

The following ecological features are considered to be KERs in relation to the proposed development due to its urban context and its potential construction and/or operational impacts:

- Designated sites have been assessed as being KERs because the subject lands are close to and connected to European sites and nationally-designated sites.
- Bats have been included as KERs on a precautionary basis as all bats and their roosts are protected under the Wildlife Acts and under the Habitats Directive. Treelines and hedgerow recorded within the proposed development site provide potential foraging and commuting habitat for bats and subsequently have been included as a KER for their potential to support the local bat population.
- Breeding birds have also been included as KERs on a precautionary basis as they are protected under the Wildlife Acts 1976-2012 and it is an offence to disturb birds while on their nests, or to wilfully take, remove, destroy, injure or mutilate their eggs or nests. Treelines and hedgerow recorded within the proposed development site provide potential habitat for breeding birds and as it is proposed to remove all vegetation on site there is potential for direct impacts on nesting birds and/or mortality of birds.

Table 3 summarises all ecological features identified as KERs based on the completion of the desk study and field survey of the subject lands. KERs have been identified as at risk of potentially significant impacts via a source-pathway-receptor link.

Table 4 - Ecological Evaluation of Key Ecological Receptors (highlighted in grey)

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Designated Sites		
Designated Sites	National-International	Yes
Fauna		
Potential Foraging/Commuting Bats	Local Importance (Higher Value)	Yes
Other Potential Terrestrial Mammals	Local Importance (Higher Value)	Yes
Potential Breeding birds	Local Importance (Higher Value)	Yes
Habitats & Flora		
Dry Meadows and Grassy Verges (GS2)	Local Importance (Lower Value)	No
Wet Grassland (GS4)	Local Importance (Lower Value)	No
Scrub (WS1)	Local Importance (Lower Value)	No
Treeline (WL2)	Local Importance (Higher Value)	Yes
Hedgerow (WL1)	Local Importance (Higher Value)	Yes
Recolonising Bare Ground (ED3)	Local Importance (Lower Value)	No
Buildings and Artificial Surfaces (BL3)	Local Importance (Lower Value)	No

5. CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

Full details of the proposed development can be found in the applicants planning application. In brief, the proposed development will comprise of 119 residential units (59 no. two bed houses, 8 no. three bed houses, and 52 no. apartments over 4 storeys) and all associated infrastructure necessary to service them. This includes a network of foul water and surface water pipes, watermains, roads, footpaths and car parking (146 spaces). The duration of the construction phase is estimated to be 2 years.

Surface water

The surface water generated from the proposed development will discharge to two existing surface water drains, one located to the north of the site and one located to the southeast of the site (further details can be found in the Drainage and Water Supply Report (Nicholas O' Dwyer Ltd., 2018)). From here, the surface water will join the existing surface water network (separate to the foul water network) and discharge to local watercourses within the Ovaca-Vartry water catchment which ultimately outfall to Killiney Bay .

There will be three attenuation areas within the proposed development site, each with associated hydrobrakes, and all surface water will be attenuated to greenfield runoff levels. The surface water drainage network within the site will incorporate multiple Sustainable Urban Drainage Systems (SUDS) measures including:

- Underground storage: storage by use of underground filter stone areas will provide a maintenance free system of retention of surface water. Flow of water through filter pipes will enable the excess discharge to flow out within the filter bed.
- Swales: the position of swales around the perimeter roads and access route areas will mitigate the provision of drainage pipes to these roads. Swales will have a stone filter surround and porous pipe to slowly discharge the surface water.

- Porous paving: the car parking areas for the apartments are designed with porous paving which will also utilise planar infiltration drainage through the stone sub-base below to an infiltration drain (includes some local storage for attenuation).
- Tree bases and planting areas: where trees and plants are located along parking areas, there will be a system of filters and gully connections to a tree pit storage system which will incorporate surplus water retention. This system combined with the porous paving will reduce the flow rate from roads and paving and provide an additional filter for pollutants.
- Filter drainage: filter drains will be incorporated into the design of the proposed development.

Foul Water

The foul water generated from the proposed development will discharge to two existing foul water drains, one located to the north of the site and one located to the southeast of the site (further details can be found in the Drainage and Water Supply Report (Nicholas O' Dwyer Ltd., 2018)). From here, the foul water will travel via the existing public foul drainage network to Shanganagh Waste Water Treatment Plant (WWTP) for treatment prior to discharge at Killiney Bay. The proposed development will have an overall P.E (Population Equivalent) of 408.

6. ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

As per the relevant guidelines, likely significant effects have only been assessed for KER, as listed in Table 4. An impact is considered to be ecologically significant if it is predicted to affect the integrity or conservation status of a KER at a specified geographical scale. All impacts are described in the absence of mitigation.

6.1. DO-NOTHING SCENARIO

Under the do-nothing scenario, it is expected that existing treelines and hedgerow would continue to provide potential habitat for foraging/commuting bats and breeding birds. It is also expected that the invasive species located within the proposed development site (butterfly bush, winter heliotrope, cotoneaster and old man's beard) would spread into the adjacent habitats within the proposed development site and into the surrounding area. Characteristics of the site would not change drastically and it would continue to support similar habitats and fauna.

6.2. ASSESSMENT OF EFFECTS ON DESIGNATED SITES

Several habitats, for which European sites downstream of the proposed development site are designated, were failing to meet favourable conservation status at the time of writing. For some of these, water pollution is considered a threat ranked as being of "*high importance*" (NPWS, 2013).

During the construction phase, there is a low risk of contaminated run-off generated during works, such as sediments and oils, to enter the surface water drainage network which ultimately discharges to Killiney Bay. Nonetheless, no significant effects are predicted on downstream European sites for the following reasons:

- Any pollution event is likely to be short in duration (i.e. confined to storm events);
- The works will be short in duration (spanning a period of approximately 2 years); and,
- The significant distance between the subject lands and downstream European sites means that it is extremely unlikely that sediments or pollutants from the proposed development will result in any discernible effects.

Foul waters from the proposed development will be transferred to Shanganagh WWTP for treatment prior to discharge into the Northwestern Irish Sea – Killiney Bay coastal waterbody. Shanganagh WWTP is operating below its capacity of 186,000 P.E. with a current operational loading of 96,389 P.E (Irish Water, 2016). The proposed development is anticipated to result in an additional foul water loading value of 408 P.E to Shanganagh WWTP which will not result in the WWTP operating above capacity.

There is no possibility of the Shanganagh WWTP effluent having significant effects on the European sites downstream due to the following reasons, as outlined in the Shanganagh WWTP Annual Environmental Report (Irish Water, 2016):

- Shanganagh WWTP was compliant with the ELV's set in the wastewater discharge licence;
- Discharge from Shanganagh WWTP does not have an observable negative impact on water quality;
- Discharge from Shanganagh WWTP does not have an observable negative impact on the Water Framework Directive Status; and,
- Discharges from Shanganagh WWTP are not considered to have an impact on the bathing waters of Killiney Beach.

6.3. ASSESSMENT OF EFFECTS ON BATS

All bat species in Ireland are protected under the Wildlife Acts 1976-2012 and are listed in Annex IV of the EU Habitats Directive 92/43/EEC (as amended). It is an offence under Section 23 of the Wildlife Acts 1976-2012 and under Section 51 of *the European Communities (Birds and Natural Habitats) Regulations, 2011* to kill or to damage or destroy the breeding or resting place of any bat species. Under the Birds and Natural Habitats Regulations it is not necessary that the action should be deliberate for on offence to occur. This places an onus of due diligence on anyone proposing to carry out works that that might result in such damage or destruction.

No evidence of bats or potential roost features were found in the trees within the proposed development site during the site survey. However, the treeline and hedgerow habitats within the site have potential suitability for foraging and commuting bats. Bat activity along these habitats could not be assessed at the time of the site survey as it was outside of the optimum survey season for bat activity. As such, a precautionary approach has been taken and these habitat are considered suitable for foraging/commuting bats. It is proposed that all vegetation is removed from the site, therefore the potential impact of the proposed development on foraging/commuting bats will be significant but at a local level. As well as impacts arising from the loss of foraging habitats/linear

features for commuting, the introduction of artificial lighting in the area may also have significant impact on local bat populations, albeit also at a local level.

6.3.1. Mitigation Measures for Bats

Mitigation measures to address the potential impacts on local bat populations from artificial lighting have been proposed below.

> **BM1:** Lighting proposals for the construction phase will adhere to the advice provided in Bats and lighting – *Guidance for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland 2010), *Guidance Notes for the Reduction of Obtrusive Light GN01* (Institute of Lighting Professionals, 2011) and *Bats and Lighting in the UK – Bats and the Built Environment Series* (Bat Conservation Trust UK, January 2008). Construction stage lighting details shall be reviewed by a qualified bat ecologist. If necessary the bat ecologist shall recommend adjustments to directional lighting (e.g. through cowls, shields or louvres) to restrict light to those areas where it is needed with a light level of 3 lux or less at ground level.

6.3.2. Residual Effects for Bats

Due to the loss of suitable foraging/commuting habitats as a result of the proposed development, a significant impact will remain, albeit at a local level.

While residual effects remain significant, this must be contextualised against the location of the proposed development site. The site is bordered by the M50 road to the east and by residential property to the north, south and west, therefore it is unlikely that there would be high levels of bat activity within the proposed development site. It is more likely that the lands are utilised by small numbers of foraging bats.

6.4. ASSESSMENT OF EFFECTS ON OTHER TERRESTRIAL MAMMALS

No evidence of other terrestrial mammal species was found during the site survey on 4th January 2019. Despite the site survey falling within the optimal survey season for identifying signs of terrestrial mammal such as badger (due to vegetation dieback), there were several large areas of dense scrub which were impenetrable and could not be thoroughly searched. Although very unlikely given the lack of any evidence of mammals (e.g. mammal trails, latrines, and hair) and the presence of a boundary wall around the vast majority of the site, the presence of protected mammals within the site cannot be ruled out and as such a precautionary approach has been taken and mitigation measures have been recommended.

6.4.1. Mitigation Measures for other Terrestrial Mammals

The following mitigation measures have been proposed to address the potential impact on protected mammal species such as badger:

> **TMM1:** Inaccessible areas of scrub will require a pre-works survey for signs of protected mammals (e.g. badger setts) in advance of site clearance. This will involve the presence of an ecologist on site to survey the areas of dense scrub as the vegetation is being removed. If a sett is uncovered, works must cease and advice from an ecologist will be sought to devise an appropriate mitigation strategy.

6.5. ASSESSMENT OF EFFECTS ON BIRDS

Several bird species were noted during the site visit in January 2019, however, the survey was carried out outside of the optimum season for breeding bird surveys. As such, a precautionary approach has been taken and the treeline and hedgerow habitats within the sites are considered suitable for breeding birds.

During the construction phase and in the absence of mitigation, there is the potential that nesting birds would be disturbed by construction works, or in a worst-case scenario nests would be abandoned by birds or destroyed by construction workers. No significant operational phase impacts are predicted on breeding birds as a result of the proposed development as the proposed development is already in a residential area.

The loss of habitat for breeding birds for nesting and foraging will have a significant impact at a local level, however, the impact is only anticipated to be short term during the construction of the development as the proposed development includes residential garden areas which displaced birds are likely to re-inhabit once established.

Mitigation measures have been proposed to protect against direct harm to birds, their nests and eggs, as it is an offence under the Wildlife Acts to injure or kill a wild bird or to disturb a wild bird on or near a nest containing eggs or unflown young.

6.5.1. Mitigation Measures for Breeding Birds

The following mitigation measures are proposed to comply with legislation protecting birds and their nests:

> **BBM1**: In order to avoid disturbance of breeding birds, their nests, eggs and/or their unflown young, all works involving the removal of trees or hedgerows will be undertaken outside of the nesting season (1st March to 31st August inclusive).
>
> **Or where this seasonal restriction cannot be observed then:**
>
> **BBM2**: A breeding bird survey will be undertaken during the appropriate survey season (between early March and late June) by an ecologist with experience undertaking breeding bird surveys in order to assess whether birds are nesting within suitable habitat affected by or immediately adjacent to the subject lands. Should nesting birds be encountered during surveys, the removal of trees or hedgerows may be required to be delayed until after the nesting season (1st March to 31st August inclusive).

6.5.2. Residual Effects for Birds

Due to the loss of suitable nesting and foraging habitat as a result of the proposed development, a significant short-term impact will remain, albeit at a local level.

While residual effects remain significant, this must be contextualised against the location and nature of the proposed development. As the proposed development site is located in a sub-urban area, the bird species likely to use the site would be common bird species which are wide spread in the Dublin area and are habituated to urban environments. As the proposed development includes residential gardens and green areas, displaced birds are likely to re-inhabit the site once the development is completed. Therefore the impact is anticipated to be temporary.

6.6. ASSESSMENT OF EFFECTS ON HABITATS

Treeline habitat (WL2) and hedgerow habitat (WL1) have been identified as KERs based on their value for local bat and bird populations. As previously discussed under sections 6.3 and 6.4 above, taking the precautionary approach, the removal of these habitats will result in a significant impact on a local level for foraging and commuting bats and a significant impact on a local level for nesting and foraging birds.

7. CUMULATIVE EFFECTS

Pressures on European sites in Killiney Bay from surface water

There is potential for "in-combination" effects of proposed plans and projects within the Dún Laoghaire-Rathdown County Development Plan 2016-2022, Dublin City Development Plan 2011-2017, Wicklow County Development Plan 2016-2022, and other county level land use plans which can influence conditions in the Northwestern Irish Sea via rivers and other surface water features.

The Northwestern Irish Sea – Killiney Bay coastal waterbody is currently classified as 'Unpolluted' and the pollutant content of future surface water discharges to Killiney Bay is considered likely to be decreased in the long-term. This is because it is an objective of the Greater Dublin Strategic Drainage Study, and all development plans within the Greater Dublin Area to include Sustainable Urban Drainage Systems in new development. Together these objectives are considered likely to reduce pressures on designated marine and intertidal species and habitats in Killiney Bay.

It is considered extremely unlikely that during construction, a pollution event would occur of a magnitude that would have any adverse effects on water quality in Killiney Bay, or affect the Qualifying Interest/Special Conservation Interests of the European sites therein, due to the distance between the site and the discharge point to Killiney Bay, and the potential for dilution in the surface water network before entering Killiney Bay. There is therefore no potential for cumulative impacts.

Pressures on European sites in Killiney Bay from foul water

The subject lands, fall within the catchment of the Shanganagh Waste Water Treatment Plant (WWTP) which discharges to the Northwestern Irish Sea – Killiney Bay. Any existing or proposed projects discharging to the plant have the potential to act cumulatively to reduce water quality in Northwestern Irish Sea – Killiney Bay, affecting European sites therein. However, no significant effects from discharge arising from the proposed development in combination with other existing or proposed developments are predicted due to the reasons outlined below:

- Shanganagh WWTP currently operates well below its capacity of 186,000 P.E. with a current operational loading of 96,389 P.E (Irish Water, 2016).
- Shanganagh WWTP was compliant with the ELV's set in the wastewater discharge licence;
- Discharge from Shanganagh WWTP does not have an observable negative impact on water quality;

- Discharge from Shanganagh WWTP does not have an observable negative impact on the Water Framework Directive Status;
- Discharges from Shanganagh WWTP are not considered to have an impact on the bathing waters of Killiney Beach; and,
- The Northwestern Irish Sea – Killiney Bay coastal waterbody is currently classified as 'Unpolluted'.

8. CONCLUSION

It can be concluded that the overall ecological implications of the project are limited to local level impacts. Potential significant effects have been identified in the case of bats and breeding birds. Measures have been provided to reduce the potential impacts on KERs, and to ensure compliance with wildlife law. Nonetheless significant impacts remain likely, albeit at a local scale, in the case of bats and breeding birds.

9. REFERENCES

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APPENDIX 1: CRITERIA FOR ECOLOGICAL EVALUATION

Ecological Valuation 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.[7]
• 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)[8] 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).[9]

[7] See Articles 3 and 10 of the Habitats Directive.

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

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

Ecological Valuation Criteria

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)[10] of the following:
  ○ Species protected under the Wildlife Acts; and/or
  ○ Species listed on the relevant Red Data list.
• Site containing 'viable areas'[11] of the habitat types listed in Annex I of the Habitats Directive.

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

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

Ecological Valuation Criteria

County Importance:
• Area of Special Amenity.[12]
• 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)[13] of the following:
  ○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  ○ Species protected under the Wildlife Acts; and/or
  ○ Species listed on the relevant Red Data list.
• Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.
• County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (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 Importance (higher value):
• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
• Resident or regularly occurring populations (assessed to be important at the Local level)[14] of the following:
  ○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  ○ Species protected under the Wildlife Acts; and/or

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

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

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

Ecological Valuation Criteria
○ Species listed on the relevant Red Data list. • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
Local Importance (lower value): • Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; • Sites or features containing non-native species that are of some importance in maintaining habitat links.