Appendix 11

11.1 South Dublin CDP Policies Relevant to Assessment

Policy	Description
NCBH2: Biodiversity	NCBH2 Objective 4: o protect our rivers and in particular to avoid overdevelopment which could have an adverse effect on the biodiversity and ecosystems of the river.
NCBH3: Natura 2000 Sites	NCBH3 Objective 3:To ensure that planning permission will only be granted for a development proposal that, either individually or in combination with existing and / or proposed plans or projects, will not have a significant adverse effect on a European Site, or where such a development proposal is likely or might have such a significant adverse effect (either alone or in combination), the planning authority will, as required by law, carry out an appropriate assessment as per requirements of Article 6(3) of the Habitats Directive 92 / 43 / EEC of the 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as transposed into Irish legislation. Only after having ascertained that the development proposal will not adversely affect the integrity of any European site, will the planning authority agree to the development and impose appropriate mitigation measures in the form of planning conditions. A development proposal which could adversely affect the integrity of a European site may only be permitted in exceptional circumstances, as provided for in Article 6(4) of the Habitats Directive.
NCBH5: Protection of Habitats and Species Outside of Designated Areas	NCBH5 Objective 1: To ensure that development does not have a significant adverse impact on biodiversity, including known rare and threatened species, and that biodiversity enhancement measures are included in all development proposals.
NCBH5: Protection of Habitats and Species Outside of Designated Areas	NCBH5 Objective 2:To ensure that an Ecological Impact Assessment is undertaken for developments proposed in areas that support, or have the potential to support protected species or features of biodiversity importance, and that appropriate avoidance and mitigation measures are incorporated into all development proposals.
NCBH10: Invasive Species	NCBH10 Objective 1: To ensure that development proposals do not lead to the spread or introduction of invasive species. If developments are proposed on sites where invasive species are or were previously present, applicants should submit a control and management programme with measures to prevent, control and / or eradicate the particular invasive species as part of the planning process and to comply with the provisions of the European Communities Birds and Habitats Regulations 2011 (S.I. 477 / 2011).
NCBH11: Hedgerow Protections	NCBH11 Objective 3:To protect and retain existing trees, hedgerows, and woodlands which are of amenity and / or biodiversity and / or carbon sequestration value and / or contribute to landscape character and ensure that proper provision is made for their protection and management taking into account Living with Trees: South Dublin County Council's Tree Management Policy (2015-2020) or any superseding document and to ensure that where retention is not possible that a high value biodiversity provision is secured as part of the phasing of any development to protect the amenity of the area.
NCBH11: Hedgerow Protections	NCBH11 Objective 4: To protect the hedgerows of the County, acknowledging their role as wildlife habitats, biodiversity corridors, links within the County's green infrastructure network, their visual amenity and landscape character value and their significance as demarcations of historic field patterns and townland boundaries. (Refer also to Chapter 4: Green Infrastructure).
GI1: Overarching	GI2 Objective 1: To reduce fragmentation and enhance South Dublin County's GI network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider GI Network.
GI1: Overarching	GI1 Objective 4: To require development to incorporate GI as an integral part of the design and layout concept for all development in the County including but not restricted to residential, commercial and mixed use through the explicit identification of GI as part of a landscape plan, identifying environmental assets and including proposals which protect, manage and enhance GI resources providing links to local and countywide GI networks.
GI1: Overarching	GI1 Objective 7: To develop linked corridors of small urban 'Miyawaki' native mini-woodlands, a minimum of 100 sq. m in size, to capture carbon and encourage biodiversity in suitable existing built-up areas, in low grade parkland, and other areas of zoned lands where deemed suitable and appropriate.

Policy	Description
GI2 Biodiversity	GI2 Objective 1: To reduce fragmentation and enhance South Dublin County's GI network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider GI Network.
GI2 Biodiversity	GI2 Objective 2: To protect and enhance the biodiversity and ecological value of the existing GI network by protecting where feasible (and mitigating where removal is unavoidable) existing ecological features including tree stands, woodlands, hedgerows and watercourses in all new developments as an essential part of the design and construction process, such proactive approach to include provision to inspect development sites post construction to ensure hedgerow coverage has been protected as per the plan.
GI2 Biodiversity	GI2 Objective 3: To retrospectively repair habitat fragmentation and provide for regeneration of flora and fauna where weaknesses are identified in the network through the implementation of new GI interventions
GI2 Biodiversity	GI2 Objective 4: To integrate GI, and include areas to be managed for biodiversity, as an essential component of all new developments in accordance with the requirements set out in Chapter 12: Implementation and Monitoring and the policies and objectives of this chapter.
GI2 Biodiversity	GI2 Objective 5: To protect and enhance the County's hedgerow network, in particular hedgerows that form townland, parish and barony boundaries recognising their historic and cultural importance in addition to their ecological importance and increase hedgerow coverage using locally native species including a commitment for no net loss of hedgerows on any development site and to take a proactive approach to protection and enforcement.
GI4 Sustainable Drainage Systems	GI4 Objective 1: To limit surface water run-off from new developments through the use of Sustainable Drainage Systems (SuDS) using surface water and nature-based solutions and ensure that SuDS is integrated into all new development in the County and designed in accordance with South Dublin County Council's Sustainable Drainage Explanatory Design and Evaluation Guide, 2022.
GI4 Sustainable Drainage Systems	GI4 Objective 3: To require multifunctional open space provision within new developments to include provision for ecology and sustainable water management.
GI5 Climate Resilience	GI5 Objective 1: To protect and enhance the rich biodiversity and ecosystems in accordance with the ecosystem services approach to development enabling mitigation of climate change impacts, by absorbing excess flood water, providing a buffer against extreme weather events, absorbing carbon emissions and filtering pollution.
GI5 Climate Resilience	GI5 Objective 2: To protect and enhance the natural regime of the watercourses of the County to more efficiently capture their flood resilience value.
GI5 Climate Resilience	GI5 Objective 3: To ensure compliance with the South Dublin Climate Change Action Plan and the provisions of the Council's Tree Management Strategy. Increase the County's tree canopy cover by promoting annual planting, maintenance preservation and enhancement of trees, woodlands and hedgerows within the County using locally native species and supporting their integration into new development. Identify suitable sites for new urban trees including Miyawaki style mini woodlands, where feasible. Support the implementation of a co-ordinated regional approach to the maintenance of trees and support the work of the Regional Steering Group on Tree Management to which South Dublin County Council is a participant. Promote the establishment of tree trails in public parks across the County. Promote the planting of new woodlands and forestry within appropriate open space and park locations within the County. To plant "pocket forests" in tracts of open grassland to act as an oasis for biodiversity. To recognise the value of mature trees in terms of carbon sequestration and amenity over saplings.

Policy	Description
GI5 Climate Resilience	GI5 Objective 4: To implement the Green Space Factor (GSF) for all qualifying development comprising 2 or more residential units and any development with a floor area in excess of 500 sq m. Developers will be required to demonstrate how they can achieve a minimum Green Space Factor (GSF) scoring requirement based on best international standards and the unique features of the County's GI network. Compliance will be demonstrated through the submission of a Green Space Factor (GSF) Worksheet (see Chapter 12: Implementation and Monitoring, Section 12.4.2).
GI5 Climate Resilience	GI5 Objective 6: To provide more tree cover across the county, in particular to areas that are lacking trees, with an emphasis on planting native Irish trees as appropriate.
GI5 Climate Resilience	GI5 Objective 7: To require the provision of green roofs and green walls, providing benefits for biodiversity and as an integrated part of Sustainable Drainage Systems (SuDS) and Green Infrastructure, in apartment, commercial, leisure and educational buildings, wherever possible and develop an evidence base for specific green roof requirements as part of the Council's ongoing SuDS strategy development.
EDE1: 'Support sustainable enterprise and employment growth in South Dublin County recognising the County's role in the Dublin region as a driver of economic growth.	EDE1 Objective 6: 'To ensure that economic and enterprise related development is provided in a manner which facilitates a reduction in greenhouse gas emissions by supporting and promoting the following measures: An increase in employment densities within walkable distances of communities and on public transport routes; Promotion of walking and cycling and use of public transport through increased permeability and mobility management measures within and outside employment areas; The sourcing of power from district heating and renewables including wind, hydro and solar; Additional native tree planting and landscaping on existing and proposed enterprise zones and development sites to aid with carbon sequestration, contribute to the green infrastructure network of the County and promote quality placemaking.'
EDE1: 'Support sustainable enterprise and employment growth in South Dublin County recognising the County's role in the Dublin region as a driver of economic growth.	EDE7 Objective 3:To ensure that landscaping and site layout in space extensive developments provides for demonstrated biodiversity measures and that landscape and biodiversity measures integrate into the green infrastructure network, in accordance with the Green Infrastructure Strategy set out in Chapter 4 of this Plan."

11.2 Examples of Ecological Valuation Criteria (Source: NRA)

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)14 of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and / or
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971);
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972);
- Biosphere Reserve (UNESCO Man & The Biosphere Programme);
- Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979);
- 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; and
- 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:
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.

County Importance

- 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:
  - 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; and
- 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) of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; and
- 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; and
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

11.3 Scott Cawley ECIA of Campus Plan (2020)

ECOLOGICAL IMPACT ASSESSMENT

PROPOSED DATA STORAGE FACILITY,
PROFILE PARK,
GRANGE CASTLE BUSINESS PARK SOUTH,
DUBLIN 11.

Prepared for PM Group

On behalf of Google Ireland Limited

Project No.	Draft	Status	Author	Reviewed By	Approved By	Issue Date
190202	I02	Draft	LH	AOR	ACr	18.11.19

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1. INTRODUCTION

1.1. QUALITY ASSURANCE

This report was written by Laura Higgins and has been reviewed by Aoife O'Rourke, both of Scott Cawley Ltd. The final report was approved by Ashling Cronin of Scott Cawley.

Laura Higgins is a Consultant Ecologist with Scott Cawley and holds a first class honours degree in Zoology from Trinity College Dublin. Laura has a range of fieldwork experience in Ireland including habitat, invasive species and protected species surveys. She has surveyed a wide range of mammal, bird and invertebrate species in terrestrial and aquatic habitats in Ireland. Laura has a great interest in ecology and is continually improving her professional skills through training courses and volunteer work. Since joining Scott Cawley, her work has included the collection of ecological data, data analysis and preparing Appropriate Assessment reports and Ecological Impact Assessments for strategic housing developments and a variety of infrastructural projects across the country.

Aoife O'Rourke is a Consultant Ecologist with Scott Cawley. She holds an honours degree in Environmental Biology from University College Dublin, specialising in zoology and botany and obtained a distinction in her Masters in Biodiversity and Conservation from Trinity College Dublin. She subsequently completed a Research Masters in Trinity College Dublin which focused on investigating the forage and landscape requirements of pollinators on fixed dune ecosystems in Ireland. Aoife is an experienced ecologist with extensive experience in the areas of species, habitat and land management and monitoring for conservation, having worked within the NGO, research, and ecological consultancy sectors in the UK and Ireland. Aoife has undertaken ecological assessments for a range of projects including tourism, industrial, residential and renewable energy developments. She has a specialist interest in invertebrates and plants, particularly pollinating insects and their host plants, however, is also competent in a range of other fauna surveys (e.g. birds, mammals, and amphibians).

Ashling is a Senior Ecologist with Scott Cawley. She holds a Masters in Ecological Assessment, an honours degree in Applied Ecology from University College Cork and an Advanced Diploma in Planning and Environmental Law from Kings Inns. She has over ten years' experience in environmental management and environmental / ecological assessment across both the private and public sector. Ashling has provided environmental and ecological support on a variety of planning applications including Strategic Infrastructure Developments (ports and roads), wind farm developments, utilities infrastructure, small to large scale industrial, commercial, residential and mixed use developments. This has included survey and assessment of a range of habitats and species including: Phase I habitat survey and mapping, mammal surveys (including bats, badgers and otters), bird surveys (both wintering and breeding), river corridor habitat surveys (including assessment of fisheries potential and biological and physiochemical water quality monitoring) and invasive species surveys. Ashling has a keen interest in both national and international environmental legislation and has extensive experience in the Appropriate Assessment (AA) process. She has been the lead ecologist for the preparation of a number of Natura Impact Statements for a range of development types and national plans, and Natura Impact Reports for a range of land use plans. Ashling also provides technical review and due diligence of Appropriate Assessment documentation for public and local authorities to aid their decision making process as well as peer review of AA documentation prior to lodgement of planning applications.

1.2. BACKGROUND

Scott Cawley Ltd. was commissioned by PM Group to undertake an Ecological Impact Assessment (EcIA) for the proposed development at Profile Park (Central Grid Reference: 303335E, 230387N). In brief, the proposed development comprises a data storage facility which will incorporate data halls with associated support areas, a 110kV substation, offices and staff facilities, a loading area, internal and external utilities, together with ancillary buildings.

1.3. AIMS

The aims of this Ecological Impact Assessment are to:

- Establish baseline ecological data for the proposed development and adjacent lands;
- 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. Survey area 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*; hereafter the 'Habitats Directive'.
- *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds;* hereafter the 'Birds Directive'.

The following national legislation is relevant to the proposed development:

- *Wildlife Acts 1976 to 2018*; 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 Acts 2000 to 201*9. 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. It also sets out the requirements in relation to environmental assessment with respect to planning matters, including transposition of the Habitats and Birds Directive into Irish law.
- *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 Acts.

2.2. LOCAL AUTHORITY PLANS

The local authority for this proposed development is South Dublin County Council. Plans and developments within South Dublin must comply with the policies and objectives of the *South Dublin County Council Development Plan 2016-2022*[1] (South Dublin County Council, 2016), including the plans objectives for biodiversity and green infrastructure, which apply to ecological features within the lands.

[1] South Dublin County Council (2016). *South Dublin County Council Development Plan 2016-2022*. Available online at https://www.sdcc.ie/en/download-it/publications/south-dublin-county-council-development-plan-2016-2022-written-statement.pdf

3. METHODOLOGY

3.1. SCOPE

The zone of influence is a distance within which the proposed works could potentially affect key ecological receptors (KERs). The zone of influence varies by KER and depends on the source of impact, the sensitivity of the receptor, and the presence of a pathway between the two.

In this instance, the key sources of potential impacts are construction activity within the lands and the potential for this to generate pollutants to the local surface water network, disturb or displace species within the lands, or result in the direct loss of habitat and/or mortality of fauna within the lands, and the potential for discharge of pollutants to local surface waters during operation of the project. The potential receptors in this instance are designated sites (including European sites) outside of the landownership and terrestrial habitats and fauna within the proposed development site and immediate vicinity.

3.2. DESK STUDY

A desk study was undertaken in September 2019 to collect any available information on the local ecological environment. The following resources assisted in the production of this report:

- Ordnance Survey Ireland (OSI) mapping and aerial photography available from OSI online GeoHive mapping resource. Available from http://map.geohive.ie/mapviewer.html;
- Data on protected species and European sites, available for download and interrogation from the National Parks and Wildlife Service (NPWS) maps and data page. Available from https://www.npws.ie/protected-sites;
- Spatial information relevant to the planning process including land zoning and planning applications from Department of Housing Planning, Community and Local Government web map portal. Available from https://myplan.ie/;
- Data on waterbodies, available for download and interrogation from the Environmental Protection Agency (EPA) web map service. Available from https://gis.epa.ie/EPAMaps/;
- Information on soils, geology and hydrogeology in the area available for download and interrogation from the Geological Survey Ireland (GSI) online Spatial Resources service. Available from https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx;
- Information on the location, nature and design of the proposed development supplied by the applicant's design team; and,
- Information on the conservation status of birds in Ireland[2]

3.3. FIELD SURVEY METHODOLOGY

3.3.1. Habitats & Flora Survey

All lands owned by Google Ireland Limited. including the proposed development site were surveyed on 21st August 2019 by Laura Higgins of Scott Cawley. All habitats were classified using the *Guide to Habitats in Ireland*[3], recording dominant species, indicator species and/or species of conservation

[2] Colhoun, K. and Cummins, S. (2013). *Birds of Conservation Concern in Ireland*. Irish Birds 9: 523-544

[3] Fossitt, A. (2000). *A Guide to Habitats in Ireland.* The Heritage Council, October 2000. Available online at https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-

interest; with the Fossitt category codes given in parentheses. Plant nomenclature follows the *BSBI's List of Accepted Plant Names*[4].

3.3.2. Fauna Survey

A general fauna survey was carried out concurrently with the habitat survey on 21st August 2019. Specialist bat activity surveys were undertaken by Laura Higgins on 21st August 2019 and 4th September 2019. A static bat detector was deployed on the site for a 2-week period from 21st August - 4th September 2019. A trail camera was deployed on the site for a week from 4th September - 11th September 2019 to detect signs of protected mammals. Fauna were surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings, as well as by direct observation and use of static equipment (static bat detector and trail camera). The habitats on site were assessed for signs of usage by protected/red-listed fauna species, and potential to support these species.

The assessment criteria outlined in Table 1 below are derived from Collins (2016)[5], and are used for the assessment of the site in terms of its suitability for commuting and foraging bats, and where relevant, the suitability of roosting habitats for bats. Scott Cawley's assessment criteria diverges from the guidelines in that the category "*moderate suitability*" has been omitted. Based on professional experience and understanding, the "*moderate suitability*" category overlaps significantly with the categories "*low suitability*" and "*high suitability"* and therefore is not considered to form a distinct category.

An inspection of the external areas of structures and trees within the subject lands involved a search for evidence of bats such as:

- Dead specimens;
- Bat droppings;
- Urine splashes;
- Fur-oil staining;
- Squeaking noises;
- Feeding remains (moth wings);
- Bat-fly (*Nycteribiid*) pupal cases; and/or,
- Odour.

Table 1. Assessment criteria for potential suitability of proposed development sites for bats, derived from similar criteria in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016).

Suitability	Description of Roosting Habitat	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[6]	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.

%20Fossitt.pdf

[4] BSBI (2007). *BSBI's List of Accepted Plant Names*. Available online at www.bsbi.org

[5] Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guiidelines (3rd edn).* The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

[6] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

	and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats in a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub, hedgerows. Linked back gardens, river valleys, streams and woodland edge. Habitat that is connected to the wider landscape that could be used by foraging bats such as trees scrub, grassland or water. Site is close to and connected to a known roost.

Two bat activity surveys were undertaken within the survey area, with the aim of identifying bat activity and presence/absence of roosting bats. Two dusk emergence/activity surveys were undertaken on 21st August and 4th September 2019 using direct observation and a handheld ultrasound detector (Elekon BatLogger M). The dusk transect surveys were carried out post-sunset. Echolocation recordings were analysed using BatExplorer software. Weather conditions were mild and rainy for the initial survey on 21st August 2019. Moderate winds and dry conditions were experienced during the survey on 4th September 2019. The surveys covered all areas of the site with a focus on the treelines and trees that may be important foraging habitats or offer potential features to support small numbers of roosting bats. A static detector was deployed within the lands to record bat passes over a 2-week period.

3.3.3. Limitations of Field Surveys / Data Deficiencies

Dedicated breeding bird surveys were not carried out to inform this ecological impact assessment as surveys were carried out outside of the breeding bird season (March-June inclusive). This is not considered to pose a significant limitation as a precautionary approach has been taken and suitable mitigation measures suggested to prevent impacts to breeding bird species.

Weather conditions during the bat survey on 21st August 2019 were poor. In rainy weather, bats may not emerge, emerge later or forage for shorter time periods. This is not considered to pose a significant limitation as a static detector was deployed for a two-week period to assess bat usage of the lands. The weather for those two weeks was largely mild and dry.

No other potential limitations were identified during the field surveys or desk data collection.

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*[7] and is

[7] NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Roads Schemes*. Revision 2, 1st June 2009.

consistent with *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*[8].

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[9] 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)[8]. 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

According to the *South Dublin County Development Plan 2016-2022* the proposed development site is currently largely zoned as *'EE- Enterprise and Employment'* with the objective *'To provide for enterprise and employment related uses'*. The south-east corner of the site is zoned as *'RU- Rural and Agriculture'* with the objective *'To protect and improve rural amenity and to provide for the development of agriculture'*, development is not proposed in this area. The surrounding lands to the west and north of the proposed development site are located within Grange Castle business park and are also zoned as *'EE- Enterprise and Employment'.* Lands to the south and east are zoned as *'RU- Rural and Agriculture'*. Grange Castle Golf Club is located to the east of the proposed development site and is zoned as *'OS- Open Space'* with the objective *'To preserve and provide for open space and recreational amenities'.*

[8] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

[9] 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.

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.

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 SAC and/or SPA 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 proposed development site is not designated as an SAC, SPA, NHA, or pNHA, however, it is located upstream of European designated sites in Dublin Bay. A separate report by Scott Cawley (*Provision of Information for Screening for Appropriate Assessment*, Scott Cawley, 2019) which accompanies this planning application has considered potential source-pathway-receptor links through hydrological means and identified connectivity via the surface water and foul water networks to European and nationally designated sites in Dublin Bay. For this reason, European and nationally designated sites have been considered as KERs for the proposed development.

A list of European and nationally designated sites within the vicinity of the proposed development, along with their qualifying interests or reasons for designation, are included in Tables 3 and 4, overleaf. The locations of these designated sites in relation to the proposed development are illustrated in Figure 2 and 3, overleaf.

Sites shown on Figures 2 and 3 and not listed in Tables 3 and 4 are considered to fall well outside the zone of influence of the proposed development due to the lack of source-pathway-receptor links.

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

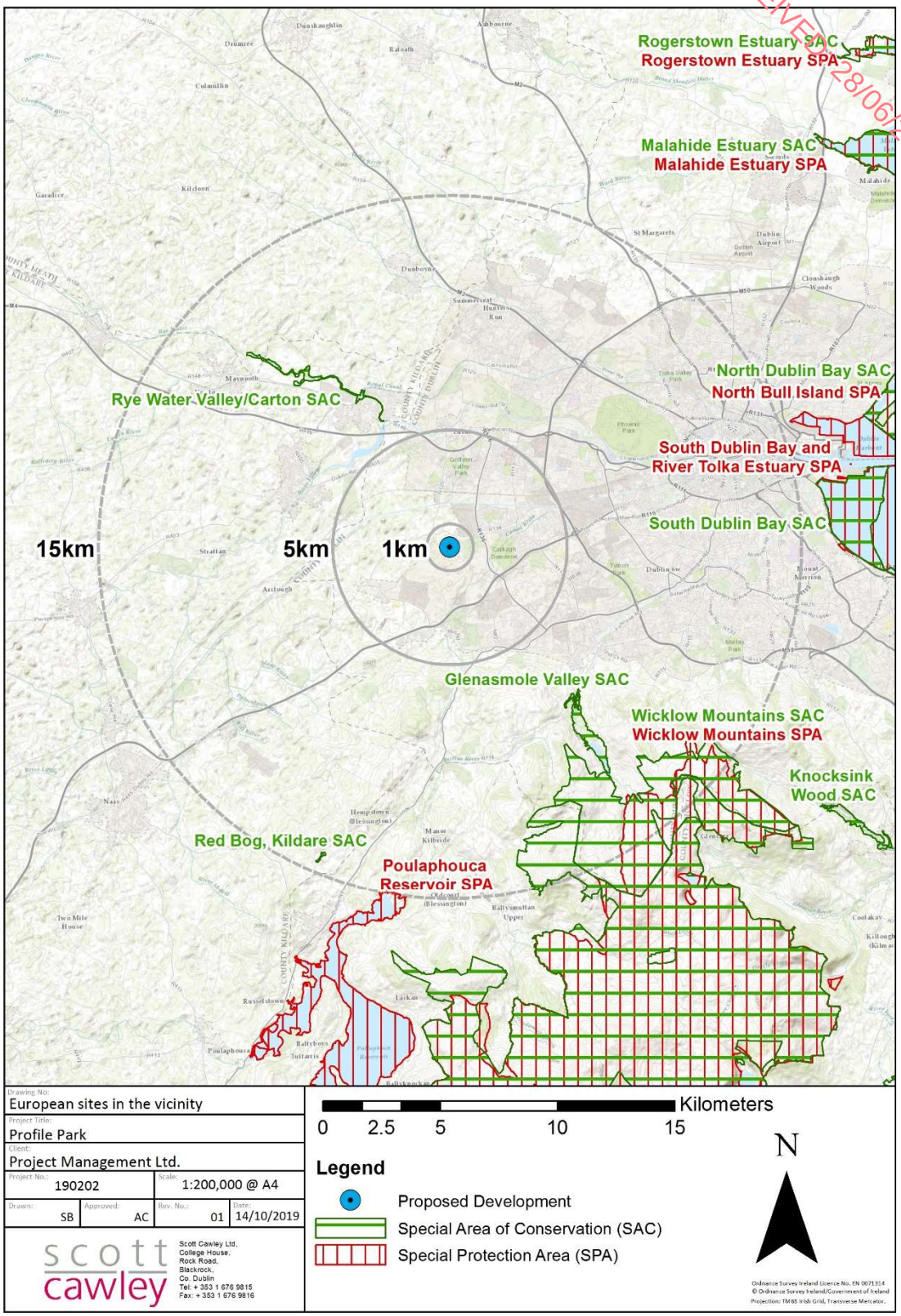


Figure 3. Nationally designated sites in the vicinity of the proposed development site.

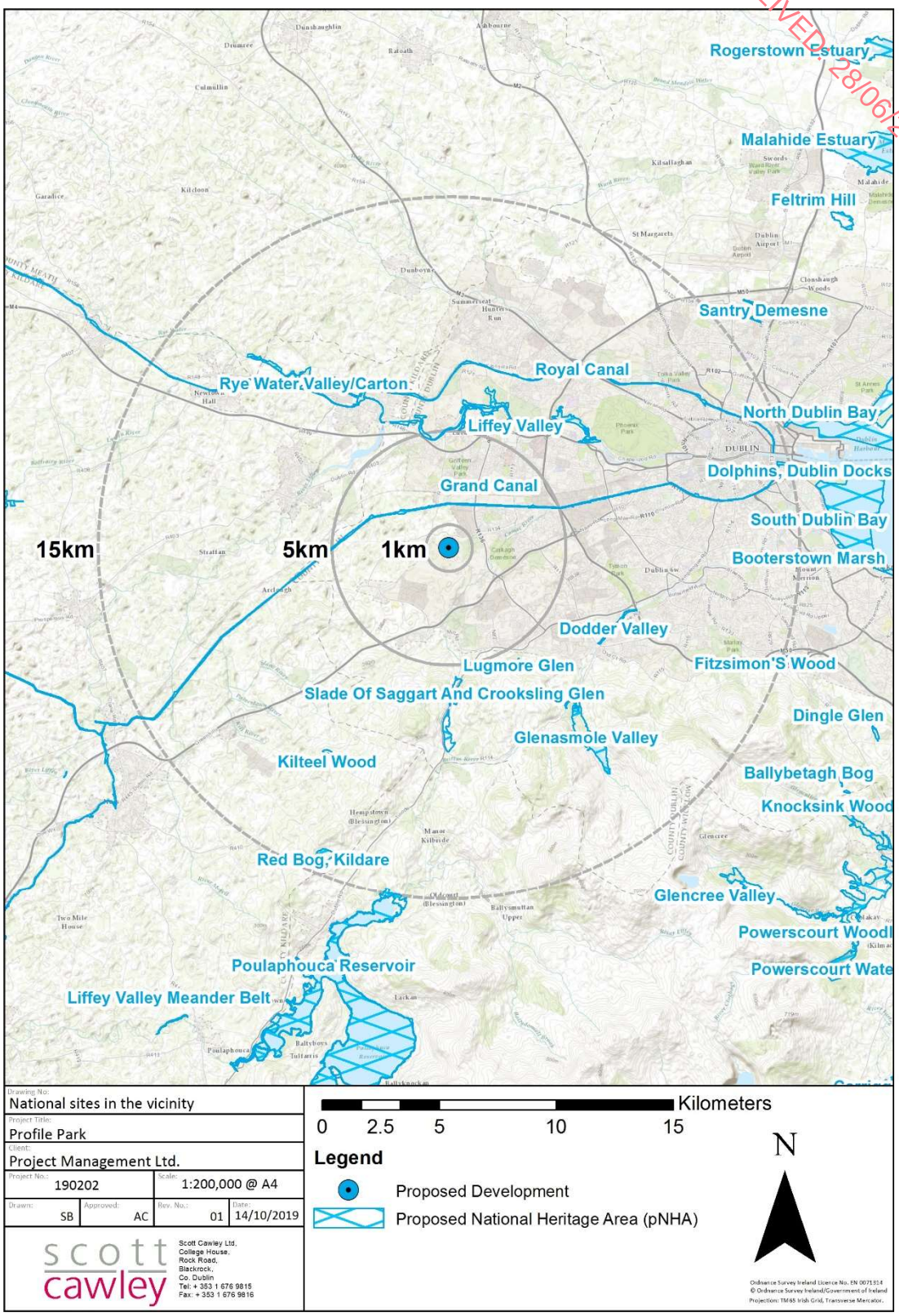


Table 3. The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
Special Area of Conservation (SAC)	
Rye Water Valley/ Carton SAC [001398] [7220] Petrifying springs with tufa formation (*Cratoneurion*)* [1014] Narrow-mouthed Whorl Snail *Vertigo angustior* [1016] Desmoulin's Whorl Snail *Vertigo moulinsiana* NPWS (2018) *Conservation objectives for Rye Water Valley/Carton SAC [001398].* Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.	Located c. 5.8km north-west of the proposed development
Glenasmole Valley SAC [001209] [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6410] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [7220] Petrifying springs with tufa formation (*Cratoneurion*) NPWS (2018) *Conservation objectives for Glenasmole Valley SAC [001209*]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.	Located c. 7.7km south of the proposed development
Wicklow Mountains SAC [002122] [3110] Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3160] Natural dystrophic lakes and ponds [4010] Northern Atlantic wet heaths with *Erica tetralix* [4030] European dry heaths [4060] Alpine and Boreal heaths [6130] *Calaminarian* grasslands of the *Violetalia calaminariae* [6230] Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [7130] Blanket bogs (* if active bog) [8110] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8210] Calcareous rocky slopes with chasmophytic vegetation [8220] Siliceous rocky slopes with chasmophytic vegetation [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [1355] *Lutra lutra* (Otter) NPWS (2017) *Conservation Objectives: Wicklow Mountains SAC 002122. Version* 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Located c. 9.3km south of the proposed development
Red Bog, Kildare SAC [000397] [7140] Transition mires and quaking bogs NPWS (2019) *Conservation Objectives: Red Bog, Kildare SAC 000397*. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	Located c. 13.8km south-west of the proposed development

South Dublin Bay SAC [000210] [1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [1310] *Salicornia* and other annuals colonising mud and sand [2110] Embryonic shifting dunes NPWS (2013b) *Conservation Objectives: South Dublin Bay SAC 000210.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located c. 15.6km east of the proposed development
North Dublin Bay SAC [000206] [1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [1310] *Salicornia* and other annuals colonising mud and sand [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1395] Petalwort *Petalophyllum ralfsii* [1410] Mediterranean salt meadows (*Juncetalia maritimi*) [2110] Embryonic shifting dunes [2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2190] Humid dune slacks NPWS (2013) *Conservation Objectives: North Dublin Bay SAC 000206*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located c. 18.2km east of the proposed development
Special Protection Area (SPA)	
Wicklow Mountains SPA [004040] [A098] Merlin *Falco columbarius* [A103] Peregrine *Falco peregrinus* *NPWS (2018) Conservation objectives for Wicklow Mountains SPA [004040].* Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.	Located c. 12.5km south of the proposed development
Poulaphouca Reservoir SPA [004063] [A043] Greylag Goose (*Anser anser*) [A183] Lesser Black-backed Gull (*Larus fuscus*) NPWS (2018) *Conservation objectives for Poulaphouca Reservoir SPA [004063].* Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.	Located c. 14.6km south-west of the proposed development site
South Dublin Bay and River Tolka Estuary SPA [004024] [A046] Light-bellied Brent Goose *Branta bernicla hrota* [A130] Oystercatcher *Haematopus ostralegus* [A137] Ringed Plover *Charadrius hiaticula* [A141] Grey Plover *Pluvialis squatarola* [A143] Knot *Calidris canutus* [A144] Sanderling *Calidris alba* [A149] Dunlin *Calidris alpina* [A157] Bar-tailed Godwit *Limosa lapponica* [A162] Redshank *Tringa totanus* [A179] Black-headed Gull *Croicocephalus ridibundus* [A192] Roseate Tern *Sterna dougallii* [A193] Common Tern *Sterna hirundo*	Located c. 15.2km east of the proposed development site

[A194] Arctic Tern *Sterna paradisaea* [A999] Wetland and Waterbirds NPWS (2015) *Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	
North Bull Island SPA [004006] [A046] Light-bellied Brent Goose *Branta bernicla hrota* [A048] Shelduck *Tadorna tadorna* [A052] Teal *Anas crecca* [A054] Pintail *Anas acuta* [A056] Shoveler *Anas clypeata* [A130] Oystercatcher *Haematopus ostralegus* [A140] Golden Plover *Pluvialis apricaria* [A141] Grey Plover *Pluvialis squatarola* [A143] Knot *Calidris canutus* [A144] Sanderling *Calidris alba* [A149] Dunlin *Calidris alpina* [A156] Black-tailed Godwit *Limosa limosa* [A157] Bar-tailed Godwit *Limosa lapponica* [A160] Curlew *Numenius arquata* [A162] Redshank *Tringa totanus* [A169] Turnstone *Arenaria interpres* [A179] Black-headed Gull *Croicocephalus ridibundus* [A999] Wetlands & Waterbirds NPWS (2015) *Conservation Objectives: North Bull Island SPA 004006*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located c. 18.2km east of the proposed development site

Table 4. National sites in the vicinity of the proposed development and reasons for their designation.

National Site Name [Code] and its Reasons for Designation	
Grand Canal pNHA [002104] Designated for the diversity of the habitats within it. Opposite-leaved pondweed *Groenlandia densa*, which is a protected flora species (Flora Protection Order (2015) has been recorded from within the Grand Canal pNHA. Signs of otter *Lutra lutra* and smooth newt *Lissotriton vulgaris* are also found along the Grand Canal pNHA, both of which are protected species.	Located *c.* 1.6km to the north of the subject lands.
South Dublin Bay [000210] This site is designated for the same features for which the South Dublin Bay SAC and the South Dublin Bay and River Tolka Estuary SPA have been designated (See Table 3 above).	Located c. 15.6km east of the subject lands.
North Dublin Bay [000206]	Located c. 14.9km east of the subject lands.

This site is designated for the same features for which the North Dublin Bay SAC and the North Bull Island SPA have been designated (See Table 3 above).	
Dolphins, Dublin Docks [000201] This site is designated for breeding common tern *Sterna hirundo* and Arctic tern *Sterna paradisaea* on a man-made structure in Dublin Bay	Located c. 16.8km east of the subject lands.

4.3. HABITATS AND FLORA

4.3.1. Desk Study Flora Records

The National Biodiversity Data Centre (NBDC) database search returned no records of protected flora species under the Flora (Protection) Order 2015 within 2km of the survey area.

The NBDC database search returned records of two non-native invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 within 2km of the subject lands:

- Japanese knotweed *Fallopia japonica*
- Spanish bluebell *Hyacinthoides hispanica*

Records of other non-native invasive species which are not subject to restrictions in Irish Law returned from the desk study include beech *Fagus sylvatica,* montbretia *Crocosmia x crocosmiiflora,* snowberry *Symphiocarpos alba,* winter heliotrope *Petasites fragrans* and butterfly-bush *Buddleja davidii.*

4.3.2. Field Survey Results

No records of plant species protected through their inclusion within the *Flora (Protection) Order, 2015* were recorded during the field surveys. No non-native invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 were recorded within the survey area.

The following undesirable species, which are not subject to restrictions in Irish Law, but which are considered to be invasive in some habitats and locations were identified within the lands:

- Sycamore *Acer pseudoplatanus*
- Butterfly bush *Buddleja davidii*

The following habitat types (and mosaics of those habitats) of the Heritage Council classification system (Fossitt, 2000) were identified within the survey area and are mapped in Figure 4. The existing Google site was surveyed but some areas of habitat were too small to map accurately. As such, they are described below but have not been included in Figure 4.

- Buildings and artificial surfaces (BL3);
- Recolonising bare ground (ED3);
- Hedgerows (WL1);
- Ornamental/ non-native shrub (WS3);
- Other artificial lakes and ponds (FL8);
- Amenity grassland (improved) (GA2);
- Dry meadows and grassy verges (GS2); and,
- Drainage ditches (FW4).

Buildings and artificial surfaces (BL3)

Plate 1. Buildings and artificial surfaces

A large proportion of the survey area is comprised of buildings and artificial surfaces habitat in the form of roads, buildings and carparks. This habitat is very common and has potential to support a limited range of fauna. It is considered to be of local importance (lower value).

Recolonising bare ground (ED3)

Plate 2. Recolonising bare ground

Recolonising bare ground habitat is common within the proposed development site and represents areas which have been disturbed and invaded by a range of weedy species. These species include broad-leaved dock *Rumex obtusifolius*, ragwort *Senecio jacobaea*, dandelion *Taraxacum officinale agg.* and meadow buttercup *Ranunculus repens*. The non-native invasive species butterfly-bush *Buddleja davidii* was also recorded on this habitat within the lands.

This habitat is very common and has potential to support a limited range of fauna. It is considered to be of local importance (lower value).

Hedgerows (WL1)

Plate 3. Hedgerows

There are several hedgerows throughout the proposed development site. The hedgerows are comprised mainly of native tree and shrub species including ash *Fraxinus excelsior*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and bramble *Rubus fruticosus* agg. Many of the trees are heavily covered in ivy *Hedera helix*. The understorey is comprised of the same species assemblage as is noted in 'Dry meadows and grassy verges (GS2)' below.

This habitat provides breeding, resting and feeding habitat for a range of fauna species for example, foxes and birds. It has been classified of being a habitat of local importance (higher value).

Ornamental/ non-native shrub (WS3)

Plate 4. (Mixed) broadleaved woodland and ornamental/ non-native shrub mosaic.

Ornamental and non-native species have been planted throughout the existing Google Ireland Limited site in formal flower beds.

Although this habitat may provide some breeding habitat and feeding resources for birds and other fauna species, due to the fact it is a recent planting of largely non-native species, it has been classed as being of local importance (lower value).

Other lakes and artificial ponds (FL8)

Plate 5. Other lakes and artificial ponds

There is an attenuation pond on the existing Google site for use as a storm water attenuation pond. Aquatic vegetation present within the pond include various sedge and rush species. The pond is surrounded by recolonising bare ground habitat and some formal ornamental planting.

Due to the steepness of the gradient making it unsuitable for aquatic fauna species, and the surrounding habitat being of artificial surfaces, this habitat has been classified as local importance (lower value).

Amenity grassland (improved) (GA2)

Plate 6. Amenity grassland (improved)

The existing Google site has some areas of managed amenity grassland. This habitat is species poor and is largely comprised of perennial ryegrass *Lolium perenne* with some common weedy species present including creeping buttercup *Ranunculus repens*, ragwort *Senecio jacobaea*, common mouse ear *Cerastium fontanum* and dandelion *Taraxacum officinale* agg..

This habitat is very common and has potential to support limited fauna. For these reasons it has been classed as being of local importance (lower value).

Dry meadows and grassy verges (GS2)

Plate 7. Dry meadows and grassy verges

The proposed development site is largely comprised of dry meadow and grassy verges habitat. This habitat is largely comprised of common grass species such as red fescue *Festuca rubra*, Yorkshire fog *Holcus lanatus* and cocksfoot *Dactylis glomerata* as well as other herbaceous weedy species such as white clover *Trifolium repens*, red clover *Trifolium pratense*, common hogweed *Heracleum sphondylium* and ragwort *Senecio jacobaea*. This habitat provides foraging, roosting and nesting habitat for a range of fauna species. No signs of protected mammal were recorded on the site, but rabbits were abundant in this habitat.

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

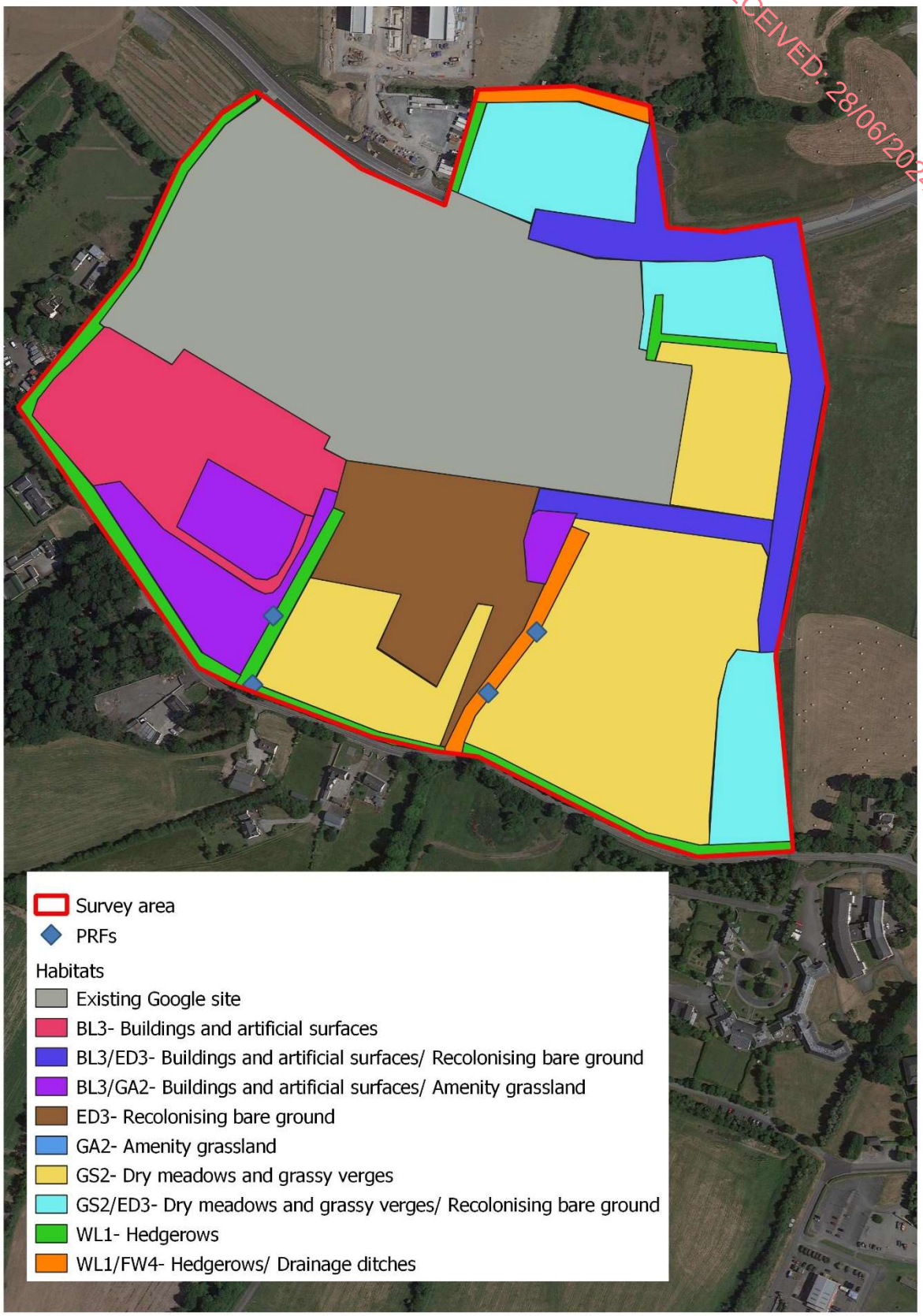
Drainage ditches (FW4)

Plate 8. Drainage ditches

There are drainage ditches present within the proposed development site. Standing water in these ditches are suitable for breeding amphibians such as common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*.

This habitat has been classified as being of local importance (higher value) due to its potential to support amphibians.

Figure 4. Habitats noted within the survey area during field surveys.



4.4. FAUNA

A desk study and field surveys were carried out to assess the usage of the survey area by protected/ red-listed fauna species and potential to support these species. The desk study records for rare, threatened or protected fauna species were generated from a 2km search around the proposed development site using the National Biodiversity Data Centre's online map viewer (this excludes low resolution records that cover areas >1km²).

4.4.1. Bats

Desk study results

A search of the NBDC database returned records of five bat species within 2km of the survey area- brown long-eared bat *Plecotus auritus*, Daubenton's bat *Myotis daubentonii*, Leisler's bat *Nyctalus leisleri*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*.

These bat species are all protected under the Wildlife Acts and the European Habitats Directive, where they are listed on Annex IV.

Field survey results

The hedgerows within the proposed development site and woodland, hedgerows and treelines in the surrounding area are considered to be suitable foraging and commuting habitat for bats.

No bat roosts were confirmed within the survey area but during the flora and fauna surveys, a minimum of four trees within the site were considered to have potential roost features (PRFs) that could support bats (See Figure 4). These trees were all considered to be suitable for roosting bats as they are large, old trees with dense ivy cover. These trees were assessed from ground level. Four bat species were recorded as being present within the lands- common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Leisler's bat *Nyctalus leisleri* and a myotis bat species *Myotis sp.*

Trees with Potential Roosting Features (PRFs) within the lands

Plate 9: Trees with PRFs within the lands

4.4.2. Other mammals

Desk study results

Records of three other mammal species protected under the Wildlife Acts were returned within the 2km search area- otter *Lutra lutra,* West European hedgehog *Erinaceus europaeus* and Irish hare *Lepus timidus subsp. Hibernicus*.

Field survey results

No signs of badger or other protected mammals were noted within the survey area. It is possible however that the hedgerows within the site could host populations of hedgehog *Erinaceus europaeus* and pygmy shrew *Sorex minutus*. The dry meadows and grassy verges habitat represents suitable foraging habitat for a range of protected mammals species. Rabbits are ubiquitous throughout the lands.

4.4.3. Birds

Desk study results

All nesting wild birds are protected from disturbance and destruction under the Wildlife Acts. Records of 4 Amber-listed species of Birds of Conservation Concern in Ireland (BoCCI) (Colhoun and Cummins, 2013) were returned within 2km from the survey area- swallow *Hirundo rustica*, swift *Apus apus*, house martin *Delichon urbicum* and sand martin *Riparia riparia*.

Field survey results

Birds recorded within the lands during the multi-disciplinary survey include a range of common garden, woodland and farmland species. The following species were recorded within the survey area: magpie *Pica pica*, robin *Erithacus rubecula*, woodpigeon *Columba palumbus,* starling *Sturnus vulgaris*, rook *Corvus frugilegus*, hooded crow *Corvus cornix*, goldfinch *Carduelis carduelis*, buzzard *Buteo buteo*, pied wagtail *Motacilla alba*, swallow *Hirundo rustica* and pheasant *Phasianus colchicus*.

4.4.4. Amphibians

Desk study results

No records of amphibian species protected under the Wildlife Acts or listed on Annex V of the EU's Habitats Directive were returned within the 2km search area.

Field survey results

No signs of amphibians were noted during the field survey however drainage ditches on the proposed development site represent suitable breeding habitat for these species.

4.4.5. Invertebrates

Desk study results

Records of one invertebrate species protected under the Wildlife Acts and listed on Annex II and V of the EU's Habitats Directive was returned within the 2km search area- white-clawed crayfish *Austropotamobius pallipes*.

Field survey results

No signs of protected invertebrates were noted during the field survey and the habitats available onsite are not suitable to support any of Ireland's protected invertebrate species.

5. SUMMARY OF KEY ECOLOGICAL FEATURES

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

- European sites are considered to be KERs as the proposed development has connectivity to European sites in Dublin Bay.
- Nationally designated sites are considered to be KERs as the proposed development has connectivity to national sites in Dublin Bay.
- Other mammals are considered to be KERs on a precautionary basis due to the presence of suitable feeding and resting habitat for protected mammal species within the lands.
- Bats are considered to be KERs on a precautionary basis as all bats and their roosts are protected under the Wildlife Acts and under the Habitats Directive. Although little bat activity was recorded on the site, the hedgerow habitat represents potentially suitable commuting and foraging habitat.
- Breeding birds are considered to be KERs on a precautionary basis due to the presence of suitable breeding habitat within the lands and their protection under the Wildlife Acts.
- Hedgerow habitat within the study area provides potential foraging and commuting habitat for bats and suitable breeding habitat for birds. Hedgerows have been included as a KER for their function in supporting the local bat and breeding bird populations.
- Drainage ditches provide suitable breeding habitat for amphibian species within the lands. They have been included as a KER for their function in supporting the local amphibian population.
- Dry meadows and grassy verges habitat within the lands provide shelter and foraging habitat for a range of different fauna species. This habitat has been included as a KER for its function in supporting fauna populations.

Table 5 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 5. Ecological evaluation of Key Ecological Receptors (highlighted in grey)

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Designated Sites		
European Sites	International Importance	Yes
Proposed Natural Heritage Areas	National Importance	Yes
Fauna		
Breeding birds	Local Importance (Higher Value)	Yes
Foraging/Commuting Bats	Local Importance (Higher Value)	Yes
Other mammals	Local Importance (Higher Value)	Yes
Amphibians	Local Importance (Higher Value)	Yes
Habitats & Flora		
Buildings and artificial surfaces (BL3)	Local Importance (Lower Value)	No
Recolonising bare ground (ED3)	Local Importance (Lower Value)	No

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Hedgerows (WL1)	Local Importance (Higher Value)	Yes, in relation to protected fauna
Ornamental/ non-native shrub (WS3)	Local Importance (Lower Value)	No
Other lakes and artificial ponds (FL8)	Local Importance (Lower Value)	No
Amenity grassland (improved) (GA2)	Local Importance (Lower Value)	No
Dry meadows and grassy verges (GS2)	Local Importance (Higher Value)	Yes, in relation to protected fauna
Drainage ditches (FW4)	Local Importance (Higher Value)	Yes, in relation to protected fauna

6. CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development comprises a data storage facility which will incorporate data halls with associated support areas, a 110kV substation, offices and staff facilities, a loading area, internal and external utilities, together with ancillary buildings.

Surface waters will discharge to an existing culverted ditch to the north of the site which ultimately discharges to Dublin Bay via the Griffeen River and the River Liffey. Foul waters resulting from the proposed development will connect to the existing sewer network and be treated at Ringsend WWTP before being discharged to Dublin Bay.

7. ASSESSMENT OF EFFECTS, MITIGATION MEASURES AND COMPENSATION MEASURES

As per the relevant guidelines, likely significant effects have only been assessed for identified KERs, as listed in Table 5. 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.

7.1. DO-NOTHING SCENARIO

Under the do-nothing scenario, it is likely that the site would continue to offer suitable habitat for commuting and foraging bats, breeding amphibians and nesting habitat for breeding birds.

7.2. EUROPEAN SITES AND NATIONALLY DESIGNATED SITES

7.2.1. Assessment of Effects on European and Nationally Designated Sites

Significant effects on European and nationally designated sites in Dublin Bay and the Irish Sea as a result of hydrological and all other impacts have been excluded for the following reasons:

Surface water

- the scale and location of the proposed development relative to the receiving surface water network;
- the relatively low volume of any surface water run-off or discharge events relative to the receiving surface water and marine environments; and
- the level of mixing, dilution and dispersion of any surface water run-off/discharges in the receiving watercourses, Dublin Bay and the Irish Sea.

Foul water

Despite the capacity issues associated with the Ringsend WWTP, the Liffey Estuary Lower and Dublin Bay are currently classified by the EPA as being of "Unpolluted" water quality status[10]. The Tolka Estuary is currently classified by the EPA as being "Potentially Eutrophic". The pollutant content of future surface water discharges to Dublin Bay is considered likely to decrease in the long-term for the following reasons:

- An Bord Pleanála granted planning permission for an upgrade to the Ringsend WWTP in April 2019[11], which will increase capacity at the plant; and,
- Irish Water has submitted a planning application[12] for the Greater Dublin Drainage (GDD) Project to An Bord Pleanála. The GDD will involve the construction of a new regional wastewater treatment facility in Clonshaugh in North County Dublin, the development of which will help alleviate capacity issues at Ringsend WWTP.

It is also an objective of the Greater Dublin Strategic Drainage Study, and all development plans within the catchment of Ringsend WWTP, to include Sustainable Urban Drainage Systems (SUDS) within new developments. The relevant development plans also have protective policies/ objectives in place to protect water quality in the receiving freshwater and marine environments, and to implement the Water Framework Directive in achieving good water quality status for Dublin Bay.

Hydrogeology

Given that groundwater is found at a depth of 1.8 - 3.5m below ground level, it is likely that it will be encountered during the construction phase of the proposed development. The Rye Water/ Carton Valley SAC is designated for groundwater dependent habitats and is within the same groundwater body as the proposed development however, the proposed development site is considered to be outside of the zone of influence of the Rye Water/ Carton Valley SAC for the following reasons:

- The SAC is approximately 5.8km from the proposed development site and is buffered from the development by significant infrastructure including the N4 motorway, industrial buildings in Grange Castle Business Park and residential developments; and,
- The presence of waterbodies between the proposed development site and the SAC including the River Liffey, the Grifeen River and the Grand Canal.

Additionally, it is not proposed to extract groundwater as part of this development. It is anticipated that groundwater will only be encountered during short-term excavations in the construction phase of the proposed development. There is no piling proposed as part of this development and building foundations will sit on the upper bedrock, above the groundwater table.

As significant effects on European and nationally designated sites have been excluded, no mitigation measures are required.

[10] Transitional and Coastal Surface Water Quality data (2010-2012) accessed from the EPA Envision Mapviewer www.gis.epa.ie/Envision (accessed May 2019)

[11] An Bord Pleanála Case Reference PL29S.301798 – *10-year permission for development of the Ringsend wastewater treatment plant upgrade project including a regional bio solids storage facility*, Available online at www.pleanala.ie/casenum/301798.htm. Accessed 5th June 2019.

[12] An Bord Pleanála Case Reference PL06F.301908 - *Greater Dublin Drainage Project consisting of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional bio solids storage facility.* Available online at www.pleanala.ie/casenum/301908.htm, Accessed 5th June 2019.

7.3. BIRDS

7.3.1. Assessment of Effects on Birds

Breeding Birds

Bird species are protected under the *Wildlife Acts 1976-2019* 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. In the absence of adoption of protocols for the protection of birds and their nests, there is potential for direct impacts on nesting birds and/or mortality of birds arising from the clearance of vegetation within the proposed development site.

Vegetation removal required to facilitate the construction of the proposed development include habitat loss of hedgerows and scrub, which provide both feeding and nesting habitat for the local bird population. If this vegetation removal was to be undertaken during the breeding bird season, it could result in a significant impact on breeding birds at a local scale.

It is possible that birds currently using the site and its environs may be temporarily disturbed as a consequence of increased noise and human activity levels in the construction zone of the proposed development. This disturbance could potentially result in the temporary displacement of birds within the construction zone and as a result, a potential reduction in the breeding success of such birds during this period. This impact is considered to be temporary and restricted to the construction phase of the development and post-construction until birds in the locality habituate to the increased levels of noise and human activity. Birds recorded within the subject lands are typical garden and sub-urban species which are considered to tolerate increased levels of disturbance providing suitable habitat remains. Suitable alternative breeding and feeding bird habitat will be provided by compensatory planting within the proposed development site as outlined below in section 7.3.3. Additionally, suitable habitat is available in the vicinity of the proposed development site such as the surrounding farmland and Grange Castle Golf Club. These lands are zoned as *'RU- Rural'* and *'OS- Open Space'* (South Dublin County Council, 2016) and as such, won't be developed under the current development plan. Overall the development is predicted to result in a temporary significant impact on breeding birds at a local scale.

7.3.2. Mitigation Measures for Breeding Birds

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, prior to works commencing, during the appropriate survey season (between early March and late June) by an ecologist with experience undertaking breeding bird surveys in order to confirm whether birds are nesting within suitable habitat affected by or immediately adjacent to the subject lands. If no breeding birds are found nesting in trees or hedgerows on the site, this vegetation must be removed within 48 hours or repeat surveys will be necessary. Should nesting birds be present 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).

7.3.3. Enhancement Measures for Breeding Birds

BBC1: It is proposed to replicate lost hedgerow habitat within the lands by planting groups of native trees with an understorey of shrubby native species. This habitat should connect to the surrounding landscape and be either equal to or greater than the length of hedgerow being removed. The species chosen should reflect those already known to be present on the proposed development site. Suitable local tree species include ash *Fraxinus excelsior*, hazel *Corylus avellana*, elder *Sambucus nigra* and native oak *Quercus* species. Suitable native understorey planting includes the following species: bramble *Rubus fruticosus agg.*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*.

7.4. BATS

7.4.1. Assessment of Effects on Bats

The existing hedgerows on the proposed development site will be removed as part of the development. This will result in the loss of trees with PRFs that may support small numbers of roosting bats and potential foraging and commuting habitat for bats. Overall the impact on the local bat population as a result of the loss of trees with PRFs and foraging and commuting habitat is considered to be a significant impact at a local scale.

Artificial lighting proposed as part of the construction and operational phases of the development is not expected to impact significantly upon bats due to the well-lit nature of the existing Google data centre and the presence of suitable commuting and foraging habitat in the vicinity of the proposed development.

7.4.2. Mitigation Measures for Bats

The following mitigation measures are proposed to ensure compliance with legislation within the Wildlife Acts 1976-2019 which protects bats and their roosts:

BM1: Where trees are considered to have potential for bats, a PRF (potential roosting feature) inspection survey will be conducted the day of the proposed felling by a suitably qualified and experienced ecologist. Access to PRFs on the day of removal will be facilitated using a cherry picker/Mobile Elevating Work Platform (MEWP) where possible and the PRFs will be inspected with the aid of an endoscope and/or torch. Where bats are encountered, all relevant works will cease and an application for a derogation licence must be submitted to the NPWS to permit removal of the roost.

BM2: Where it is not possible for a qualified ecologist to inspect the PRFs at height, a bat emergence and re-entry survey should be conducted the night prior to felling. Where a bat roost is encountered, all relevant works will cease and an application for a derogation licence must be submitted to the NPWS to permit removal of the roost. If bat roosts are not encountered during the survey, trees will be section-felled in the presence of a suitably qualified ecologist. Tree sections with PRFs will be left in-situ with bat access points facing upwards for 48 hours to allow any bats that may be present to emerge.

BM3: Lighting proposals for the construction and operational 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 Artificial Lighting in the UK – Bats and the Built Environment Series* (Bat Conservation Trust UK, 2018). Construction and operational stage lighting details shall be reviewed by a qualified bat ecologist. Any external lighting system for the proposed development will be designed to minimise glare and light spillage to surrounding agricultural lands. All external lighting will be of a type that ensures deflection of lighting downwards. 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.

7.5. OTHER MAMMALS

7.5.1. Assessment of Effects on Other Mammals

Although no signs of protected mammals were noted within the lands, the proposed development has a range of habitats suitable to support protected mammal species such as hedgehog, badger and hare. Therefore, the proposed development is predicted to have a permanent significant impact at a local scale.

7.6. AMPHIBIANS

7.6.1. Assessment of Effects on Amphibians

Realignment and culverting of a drainage ditch onsite will result in the permanent loss of suitable breeding habitat for amphibians. Although no amphibians were recorded during the surveys, drainage ditches represent potentially suitable breeding habitat for amphibians, particularly frogs. Therefore, the development is predicted to have a permanent significant impact at a local scale.

7.6.2. Mitigation Measures for Amphibians

AM1: An amphibian check will be carried out by an experienced ecologist prior to works to infill the drainage ditch to ensure that no common frog or smooth newt species are present. This check will involve a torching survey for smooth newt the night prior to infilling. A sweep-net survey immediately prior to works will also be required to check for common frog. Should amphibians be encountered during this check they will be translocated from the affected ditch to a suitable receptor site in a sensitive manner so as to avoid any mortality or injury to amphibians present.

8. CUMULATIVE EFFECTS

The surrounding lands are largely zoned as '*EE- Enterprise and Employment'* in the *South Dublin County Council Development Plan 2016-2022* (South Dublin County Council, 2016). There are numerous granted planning permissions for industrial developments in the vicinity of the proposed development site which are likely to be in construction at the same time as the proposed development. In this case, there is potential for cumulative impacts to arise, as a consequence of the proposed development acting in-combination with other plans and projects, on water quality in the downstream surface water environment and on disturbance to fauna. It is considered that these potential cumulative impacts would be temporary and occur at a local geographical scale.

There will be no significant cumulative impacts, as a consequence of the proposed development acting in-combination with other plans and projects, on downstream European sites or pNHAs in Dublin Bay for reasons outlined Section 8.2.

9. CONCLUSION

Potential impacts that may arise from the proposed development in the absence of mitigation may be summarised as follows:

- Impact on breeding birds at a local scale due to the removal of suitable nesting habitat during the breeding bird season;
- Impact on bats at a local scale due to the removal of trees and treelines identified as being suitable for roosting, foraging and commuting bats;
- Impact on mammals at a local scale due to the removal of suitable foraging and resting habitat; and,
- Impact on amphibians at a local scale due to the removal of suitable breeding habitat for amphibians.

Mitigation measures outlined in Section 8 will reduce the magnitude of potential impacts. It was concluded that cumulative impacts to the KERs (foraging/ commuting bats, breeding birds, mammals and amphibians) could arise as a consequence of the proposed development acting in-combination with other plans and projects. This potential cumulative impact would be significant, albeit temporary, and would occur at a local geographical scale. There will be no significant cumulative impacts on downstream European sites or pNHAs for reasons outlined in Section 7.2 above.

APPENDIX 1: EXAMPLES OF 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.[13]
• 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)[14] of the following:
  ○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and / or
  ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
• Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).
• World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).
• Biosphere Reserve (UNESCO Man & The Biosphere Programme).
• Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).
• 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).[15]

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

[14] 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.

[15] 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)[16] of the following:
    - Species protected under the Wildlife Acts; and/or
    - Species listed on the relevant Red Data list.
- Site containing 'viable areas'[17] of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity.[18]
- 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)[19] 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.

[16] 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.

[17] 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).

[18] 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.

[19] It is suggested that, in general, 1% of the county population of such species qualifies as a county important population.

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)[20] of the following:
    - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
    - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
    - Species protected under the Wildlife Acts; and/or
    - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

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

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.

[20] 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.

11.4 Guidelines for assessing the potential suitability of the proposed development site for bats based on the presence of a habitat feature within the landscape, to applied using professional judgement (Source BCT Guidance)

Table 4.1

Potential suitability	Roosting Habitats in Structures	Potential Flight-Paths and Foraging Habitats
High suitability	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions (temp, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats, such as river valleys, streams, hedgerows, lines of trees, and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses, and grazed parkland. Site is close to and well connected to known roosts.
Moderate suitability	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low suitability	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting suitability.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by another habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible suitability	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
No suitability	No habitat on site likely to be used by any roosting bat at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e., no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).

Table 4.2

Suitability	Description
NONE	Either no PRFs n the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present

11.5 Copy of Licence: Licence to Capture Protected Wild Animals for Educational, Scientific or Other Purposes

National Parks & Wildlife Service
LICENCE

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Licence No.124/2024

NATIONAL PARKS & WILDLIFE SERVICE

Wildlife Acts 1976 to 2018 – Sections 23 and 34

LICENCE TO CAPTURE PROTECTED WILD ANIMALS FOR EDUCATIONAL, SCIENTIFIC OR OTHER PURPOSES

The Minister for Housing, Local Government and Heritage in exercise of the powers conferred on him by Sections 9, 23 and 34 of the Wildlife Acts 1976 to 2018 authorises:

Amy Sproule and Hannah Sheridan, Bedford House, 3rd Floor, 16-22 Bedford Street, Belfast, UK BT2 7FD

To disturb specimens of the species specified in Column 1 of the Schedule hereunder in the area specified in Column 2 by the means specified in column 3 for scientific, educational or other purposes during the period beginning on **May 8th 2024** and ending on **July 31st 2024**, subject to the conditions listed overleaf.

SCHEDULE

1	2	3
Species	**Area**	**Means of capture**
Common Frog (*Rana temporaria*) **Smooth newt (*Rana temporaria*)**	**Google PPK Data Centre Campus Aungierstown And Ballybane, Co. Dublin**	**Hand net** **Clulight lamp**

Dated 8 May 2024

For the Minister for Housing, Local Government and Heritage

Conditions

1. This licence shall be produced for inspection on a request being made on that behalf by a member of An Garda Síochána or any person appointed by the Minister for Housing, Local Government and Heritage under Section 72 of the Wildlife Acts 1976 to 2018, to be an authorised person for the purposes of the Acts.

2. Amphibians must be released again immediately after capture on site.

3. Licensees must follow biosecurity protocols to ensure no transfer of invasive plant or animal species between waterbodies.

4. The local NPWS District Conservation Officer or Conservation Ranger must be contacted prior to the activity commencing under the terms of this licence.

5. Licensees are encouraged to submit all amphibian and reptiles records to the National Biodiversity Data Centre.

6. **On expiry of this licence a return stating the work carried out must be provided to the National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, 90 North King Street, Dublin 7, D07 N7CV, email wildlifelicence@npws.gov.ie. Any subsequent applications for a Section 23 & 34 licence will be judged against the full, proper and timely submission of returns under the licence. (A 'Nil' return should be submitted if applicable.)**

7. It is an offence under Section 69(6) of the Wildlife Acts to contravene a condition, attached to a licence or permission, granted by the Minister.

8. Any query in relation to this licence should be addressed to National Parks and Wildlife Service, 90 North King Street, Dublin 7, D07 N7CV. Telephone: 01-888 3287.

Note: This licence does not confer right of entry onto any lands.

11.6 European sites within 15km of the proposed development site with qualifying interests

Protected Site	Qualifying Interest (QI) and Special Conservation Interest (SCI)	Approximate Distance (km) and Direction from Site
Rye Water Valley SAC	1014 Narrow-mouthed Whorl Snail (Vertigo angustior) 1016 Desmoulin's Whorl Snail (Vertigo moulinsiana) 7220 Petrifying springs with tufa formation (Cratoneurion)*	5.8 north-west
Glenasmole Valley SAC	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7220 Petrifying springs with tufa formation (Cratoneurion)*	7.7 south-east
Wicklow Mountains SAC	1355 Otter (Lutra lutra) 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 Calaminarian grasslands of the Violetalia calaminariae 6230 Species-rich grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles	9.5 south-east
Wicklow Mountains SPA	A098 Merlin (Falco columbarius) A103 Peregrine (Falco peregrinus)	12.8 south-east
Red Bog, Kildare SAC	7140 Transition mires and quaking bogs	14.1 south
Poulaphouca Reservoir SPA	A043 Greylag goose (Anser anser) A183 Lesser black-backed gull (Larus fuscus)	14.6 south

11.7 Habitat photographs

Habitat Name	Photograph
Amenity grassland	 

Habitat Name	Photograph
Building and artificial surfaces	 

Habitat Name	Photograph
Drainage Ditch	
Dry meadows and grassy verges	

Habitat Name	Photograph
	
Hedgerow	

Habitat Name	Photograph
Recolonising bare ground	 

Habitat Name	Photograph
Scrub	 

Habitat Name	Photograph
Ornamental/ non-native shrub mosaic	 

Habitat Name	Photograph
Other Artificial Lakes and Ponds	

Habitat Name	Photograph
Treeline	 

11.8 NBDC (Notable Species from Past 10 Years)

Grid square	Species group	Species name	Date of last record	Designation
O03F	bird	Common Swift (Apus apus)	27/10/2022	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03F	insect - hymenopteran	Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	27/07/2023	Threatened Species: Near threatened
O03F	terrestrial mammal	Daubenton's Bat (Myotis daubentonii)	19/08/2013	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
O03F	terrestrial mammal	Pine Marten (Martes martes)	25/06/2020	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
O03F	terrestrial mammal	Soprano Pipistrelle (Pipistrellus pygmaeus)	19/08/2013	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
O03L	bird	Common Coot (Fulica atra)	13/01/2018	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03L	bird	Common Pochard (Aythya ferina)	11/01/2023	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03L	bird	Great Cormorant (Phalacrocorax carbo)	11/01/2023	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03L	bird	Tufted Duck (Aythya fuligula)	11/01/2023	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Grid square	Species group	Species name	Date of last record	Designation
O03L	terrestrial mammal	West European Hedgehog (Erinaceus europaeus)	29/06/2022	Protected Species: Wildlife Acts
O03G	bird	Barn Swallow (Hirundo rustica)	16/09/2017	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03G	bird	Common Starling (Sturnus vulgaris)	16/09/2017	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03G	bird	House Martin (Delichon urbicum)	08/06/2018	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03G	bird	Peregrine Falcon (Falco peregrinus)	16/09/2017	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
O03G	flowering plant	Black Currant (Ribes nigrum)	16/09/2017	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O03G	flowering plant	Common Gromwell (Lithospermum officinale)	12/08/2017	Threatened Species: Near threatened
O03G	terrestrial mammal	Daubenton's Bat (Myotis daubentonii)	26/08/2014	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
O03G	terrestrial mammal	Eastern Grey Squirrel (Sciurus carolinensis)	03/03/2022	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03G	terrestrial mammal	European Rabbit (Oryctolagus cuniculus)	06/02/2014	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O03G	terrestrial mammal	West European Hedgehog (Erinaceus europaeus)	24/06/2022	Protected Species: Wildlife Acts

Grid square	Species group	Species name	Date of last record	Designation
O03K	flowering plant	Japanese Knotweed (Fallopia japonica)	07/05/2016	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	terrestrial mammal	Eastern Grey Squirrel (Sciurus carolinensis)	31/12/2017	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	terrestrial mammal	American Mink (Mustela vison)	30/07/2018	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	flowering plant	Three-cornered Garlic (Allium triquetrum)	01/05/2021	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	flowering plant	Indian Balsam (Impatiens glandulifera)	24/08/2021	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	terrestrial mammal	West European Hedgehog (Erinaceus europaeus)	03/11/2021	Protected Species: Wildlife Acts
O03K	bird	Common Coot (Fulica atra)	17/01/2022	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	bird	Tufted Duck (Aythya fuligula)	17/01/2022	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	bird	Little Grebe (Tachybaptus ruficollis)	17/02/2022	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Grid square	Species group	Species name	Date of last record	Designation
O03K	bird	Great Cormorant (Phalacrocorax carbo)	06/03/2022	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	flowering plant	Cherry Laurel (Prunus laurocerasus)	18/04/2022	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
O03K	flowering plant	Spanish Bluebell (Hyacinthoides hispanica)	18/04/2022	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O03K	flowering plant	Sycamore (Acer pseudoplatanus)	18/04/2022	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O03K	bird	Common Pochard (Aythya ferina)	08/01/2023	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	bird	House Sparrow (Passer domesticus)	11/01/2023	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	bird	Eurasian Teal (Anas crecca)	22/03/2023	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	bird	Common Swift (Apus apus)	05/07/2023	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O03K	insect - beetle (Coleoptera)	Harlequin Ladybird (Harmonia axyridis)	28/09/2023	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

Grid square	Species group	Species name	Date of last record	Designation
O02P	terrestrial mammal	Brown Rat (Rattus norvegicus)	09/10/2015	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O02P	terrestrial mammal	Eurasian Badger (Meles meles)	13/02/2016	Protected Species: Wildlife Acts
O02P	bird	Barn Swallow (Hirundo rustica)	07/05/2016	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02P	bird	Common Swift (Apus apus)	07/05/2016	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02P	bird	Sand Martin (Riparia riparia)	07/05/2016	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02P	mollusc	Jenkins' Spire Snail (Potamopyrgus antipodarum)	22/06/2016	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O02P	bird	Common Coot (Fulica atra)	28/07/2016	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02P	terrestrial mammal	European Rabbit (Oryctolagus cuniculus)	23/01/2017	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O02P	insect - hymenopteran	Moss Carder-bee (Bombus (Thoracombus) muscorum)	04/05/2018	Threatened Species: Near threatened
O02P	flowering plant	Butterfly-bush (Buddleja davidii)	11/06/2018	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O02P	insect - hymenopteran	Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	22/06/2018	Threatened Species: Near threatened

Grid square	Species group	Species name	Date of last record	Designation
O02P	insect - hymenopteran	Lasioglossum (Dialictus) smeathmanellum	07/08/2018	Threatened Species: Data deficient
O02P	terrestrial mammal	Greater White-toothed Shrew (Crocidura russula)	26/03/2020	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
O02P	flowering plant	Giant Hogweed (Heracleum mantegazzianum)	22/06/2021	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
O02P	bird	Little Grebe (Tachybaptus ruficollis)	14/06/2022	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02P	bird	Great Cormorant (Phalacrocorax carbo)	22/03/2023	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02J	bird	House Martin (Delichon urbicum)	14/07/2017	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02J	bird	Northern Wheatear (Oenanthe oenanthe)	22/03/2019	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
O02J	insect - hymenopteran	Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	17/04/2019	Threatened Species: Near threatened
O02J	amphibian	Common Frog (Rana temporaria)	20/05/2019	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts

11.9 Amphibian Results Table

Waterbody	Date	Survey Technique	Weather Conditions	Start Time	End Time	Smooth Newt			Common Frog (presence/absence)
						Adult Male	Adult Female	Juvenile	
1	16.04.2024	1, 3	Clear, calm with day temperature at 14°C and night temperature 7°C	12:00	12:30	X	X	X	X
				22:40	23:00	X	X	X	X
	9.05.2024	1, 4	Clear, calm with day temperature at 18°C and night temperature 12°	15.10	15:25	X	X	X	X
				23.10	23:30	X	X	X	X
	04.06.2024-05.06.2024	1,2,4	Clear, calm with day temperature at 15°C and night temperature 8°	17:30	17:45	X	X	X	1 adult
				01:30	01:55	X	X	X	X
2	16.04.2024	Not surveyed as no standing water	Clear, calm and mild night with day temperature at 14°C and night temperature 7°C	N/A	N/A	X	X	X	X
	9.05.2024	Not surveyed as no standing water	Clear, calm and mild night with day temperature at 18°C and night temperature 12°C	N/A	N/A	X	X	X	X
	04.06.2024-05.06.2024	Not surveyed as no standing water	Clear, calm with day temperature at 15°C and night temperature 8°	N/A	N/A	X	X	X	X
3	16.04.2024	1, 3	Clear, calm and mild night with temperature at 7°C	13:30	14:00	X	X	X	X
				23:05	23:20	X	X	X	X
	9.05.2024	1, 4	Clear, calm and mild night with day temperature at 18°C and night temperature 12°C	17:15	17:30	X	X	X	X
				00:15	00:30	X	X	X	X
	04.06.2024-05.06.2024	1,2,4	Clear, calm with day temperature at 15°C and night temperature 8°	16:45	17:00	X	X	X	X
				00:35	01:00	X	X	X	X

Waterbody	Date	Survey Technique	Weather Conditions	Start Time	End Time	Smooth Newt			Common Frog (presence/absence)
						Adult Male	Adult Female	Juvenile	
4	16.04.2024	1, 3	Clear, calm and mild night with temperature at 7°C	14:00	14:30	X	X	X	X
				23:15	23:30	X	X	X	X
	9.05.2024	1, 4	Clear, calm and mild night with day temperature at 18°C and night temperature 12°C	17:00	17:15	X	X	X	X
				23:45	00:15	X	X	X	X
	04.06.2024-05.06.2024	1,2,4	Clear, calm with day temperature at 15°C and night temperature 8°	17:00	17:15	X	X	X	X
				01:00	01:20	X	X	X	X
5	16.04.2024	1, 3	Clear, calm and mild night with temperature at 7°C	15:00	15:30	X	X	X	X
				23:45	00:00	X	X	X	X
	9.05.2024	1, 4	Clear, calm and mild night with day temperature at 18°C and night temperature 12°C	17:40	18:00	X	X	X	X
				00:35	01:00	X	X	X	X
	04.06.2024-05.06.2024	1,2,4	Clear, calm with day temperature at 15°C and night temperature 8°	18:00	18:15	X	X	X	X
				02:10	02:30	X	X	X	X

1. Torch survey 2. Egg searching 3. Refuge searching 4. Net searching

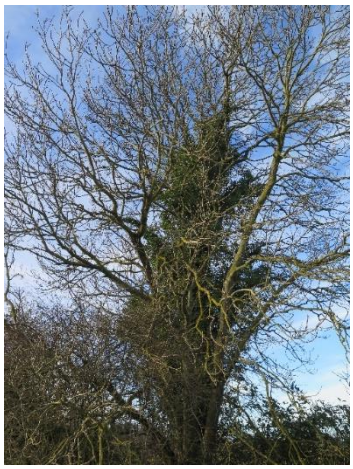
11.10 Known bat roosts within 10km of site

Species recorded at the Roost	Site	Grid	Source of Records	Most Recent Record	Approximate Distance and Direction from Proposed Development (km)
Soprano pipistrelle	OPW, Farmleigh House, Phoenix Park, Dublin	O0936	NPWS Calls	2000	6 north-east
Common pipistrelle, brown long-eared bat	Lucan, County Dublin	O0436	Dublin Bat Group Telephone and Follow-up Surveys	1999	6 north
Leisler's	Leixlip, County Kildare	O0036	Dublin Bat Group Telephone and Follow-up Surveys	1997	6 north-west
Soprano pipistrelle	Templemills, Cellbridge, County Kildare	N9631	Bats in Houses Project	1999	6 west
Brown long-eared bat	Castleknock, Dublin	O0837	A survey for bat roosts in Church of Ireland Churches	2007	7 north-east
Brown long-eared bat	Castleknock, County Dublin	O0836	Brown long-eared Roost Monitoring Scheme	2008	7 north-east
Soprano pipistrelle	Kilteel, County Kildare	N9921	Bats in Houses Project	1999	8 south-west
Soprano pipistrelle	Templeogue, County Dublin	O1228	Bats in Houses Project	1999	9 east
Soprano pipistrelle	Dublin 15	O0839	Bats in Houses Project	1999	9.5 north-east
Soprano pipistrelle	Mark Mullen, Lamb Hill, Tinode, manor Kilbride, Co. Wicklow	O0119	NPWS Calls	2007	9.5 south-west
Brown long-eared bat	Whitechurch, County Dublin	O1425	A survey for bat roosts in Church of Ireland Churches	1998	9.5 south-east
Common pipistrelle	Yellow walls, castleknock, County Dublin	O0743	A survey for bat roosts in Church of Ireland Churches	1998	10 north-east

Species recorded at the Roost	Site	Grid	Source of Records	Most Recent Record	Approximate Distance and Direction from Proposed Development (km)
Soprano pipistrelle	Main street, Clonee, County Meath	O0441	Bats in Houses Project	1999	10 north
Leisler's	Summerhill Rd, Dunboyne, County Meath	O0042	Bats in Houses Project	1999	10 north-west
Soprano pipistrelle	Dunboyne, County Meath	O0041	Bats in Houses Project	1999	10 north-west
Whiskered and Leisler's	Phoenix Park, Dublin 7	O1335	Dublin Bat Group Telephone and Follow-up Surveys	1997	10 north-east
Leisler's	Grange Rd, Rathfarnam, Dublin 6, County Dublin	O1533	Dublin Bat Group Telephone and Follow-up Surveys	1997	10 east

* Batline House Visits, Dublin Bat Group Telephone and Follow-up Surveys, Bats in Houses Project, Bridge usage by bats survey, A survey for bat roosts in Church of Ireland Churches, NPWS Calls, NPWS roosts, Brown long-eared Roost Monitoring Scheme, Heritage Council Farm Building Surveys.

11.11 Bat roost potential (BRP) features

Tree	BRP	Photo
1	Low Mature oak tree with ivy latticing (PRF). A small cavity on node (PRF) that appears to have limited depth. The tree contains two PRFs that could be used by individual bats opportunistically at any time of the year. Each PRFs would not provide enough space, shelter or protection to be used on a regular basis (unlikely to be suitable for maternity site). This could be used by individual hibernating bats.	 
2	Low Mature ash tree with ivy latticing (PRF) that could be used by individual bats opportunistically at any time of the year. However, the feature would not provide enough space, shelter or protection to be used on a regular basis (unlikely to be suitable for maternity site). This could be used by individual hibernating bats.	

Tree	BRP	Photo
3	Low Mature ash tree with ivy latticing (PRF) that could be used by individual bats opportunistically at any time of the year. However, the feature would not provide enough space, shelter or protection to be used on a regular basis (unlikely to be suitable for maternity site). This could be used by individual hibernating bats.	
4	Low Mature ash tree with ivy latticing (PRF) that could be used by individual bats opportunistically at any time of the year. However, the feature would not provide enough space, shelter or protection to be used on a regular basis (unlikely to be suitable for maternity site). This could be used by individual hibernating bats.	

11.12 Lighting Plan Drawing

LIGHTING FIXTURE SCHEDULE						
TYPE	MODEL	MANUFACTURER	LUMINOUS FLUX	LAMP	COLOUR TEMP.	DESCRIPTION
Y1 / Y1(E)	Starbeam Eco Area Smart (with 3hr battery pack for those indicated with (E) only)	THORLUX	6890lm (605lm)	LED	4000K	6m pole with 1m canterliver arm
Y2 / Y2(E)	Starbeam Eco Area Smart (with 3hr battery pack for those indicated with (E) only)	THORLUX	4135lm (655lm)	LED	4000K	6m pole with 1m canterliver arm

FENCE TYPES

- BOUNDARY TO WHICH THE APPLICATION RELATES
- LANDS UNDER THE CONTROL OF THE APPLICANT
- FENCE LINE

29/05/2024 15:11:27

ARCHITECTURE:
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ISSUE FOR PLANNING
20/06/2024

REVISIONS		
NO.	DATE	DESCRIPTION
0.1	25/06/2024	ISSUE FOR PLANNING

Drawn By: AD
Approved By: MMC

DC3-SITE-MEP

Grange Castle Buinness Park South
Baldonnell Rd
Dublin
D22 X602

Project Number: 298479-00

SITE EXTERNAL LIGHTING

Discipline:
ELECTRICAL

Scale: 1 : 750 Sheet Size: A0

Sheet Number:
DC3-E-1210-SDT-0

Current Rev: 0.1
Phase: ISSUE FOR PLANNING