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ECOLOGICAL IMPACT ASSESSMENT REPORT

FOR

LARGE-SCALE RESIDENTIAL
DEVELOPMENT (LRD)

AT


LEYDEN'S WHOLESALERS &
DISTRIBUTORS, NO. 158A
RICHMOND ROAD, DUBLIN 3, D03
YK12

ON BEHALF OF

MALKEY LIMITED

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1 INTRODUCTION

Enviroguide Consulting was commissioned by Thornton O'Connor Planning Consultants acting on behalf of Malkey Limited to undertake an Ecological Impact Assessment (EclA) for a Proposed Large-scale Residential Development (LRD) at a c. 0.55 hectare developable site at Leyden's Wholesalers & Distributors, No. 158A Richmond Road, Dublin 3, D03 YK12, hereafter referred to as the 'Site'.

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

1.1 Quality assurance and competence

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

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

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. Liam Gaffney Senior Ecologist with Enviroguide undertook the on-site surveys (unless otherwise specified), desktop research and report writing for this report. Brian Keeley, Qualified Bat Ecologist and Director of Wildlife Surveys Ireland undertook the bat surveys that inform this report.

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

Brian Keeley is a Professional Ecologist/ Bat Ecologist, and Co-director of Wildlife Surveys Ireland. Brian Keeley was a founder member of the Dublin Bat Group in 1989 and was also a founder-member of Bat Conservation Ireland, of which he is currently Chairperson. Wildlife Services Ireland are active with the Bailieborough branch of the Irish Wildlife Trust and have

established a network of IWT nature reserves in the North Meath, Cavan and Monaghan area on farms volunteered by the owners for this purpose.

2 RELEVANT LEGISLATION

An EclA is a process of identifying, quantifying, and evaluating potential effects of development-related or other actions on habitats, species and ecosystems (CIEEM, 2016). The Proposed Development is sub-threshold for an Environmental Impact Assessment (EIA) under the Planning and Development Regulations 2001-2021, as amended.

When an EclA is undertaken as part of an EIA process it is subject to the EIA Regulations (under the EU Planning and Development [Environmental Impact Assessment] Regulations 2001-2021). An EclA is not a statutory requirement, however it is a best practice evaluation process. This EclA has been undertaken to support and assess the Proposed Development planning application and assesses the potential impacts that the Proposed Development may have on the ecology of the site and its environs. Where potential for a risk to the environment is identified, mitigation measures are proposed on the basis that by deploying these mitigation measures the risk is eliminated or reduced to an insignificant level. This EclA is provided to assist the Competent Authority with its decision making in respect of the Proposed Development.

2.1 National Legislation

2.1.1 Wildlife Act 1976 and amendments

The Wildlife Act 1976 was enacted to provide protection to birds, animals, and plants in Ireland and to control activities which may have an adverse impact on the conservation of wildlife. With regard to the listed species, it is an offence to disturb, injure or damage their breeding or resting place wherever these occur without an appropriate licence from the National Parks and Wildlife Service (NPWS). This list includes all wild birds along with their nests and eggs. Intentional destruction of an active nest from the building stage up until the chicks have fledged is an offence. This includes the cutting of hedgerows from the 1st of March to the 31st of August. The act also provides a mechanism to give statutory protection to Natural Heritage Areas (NHAs). The Wildlife Amendment Act 2000 widened the scope of the Act to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act.

The current list of plant species protected by Section 21 of the Wildlife Act, 1976 (and amendments) is set out in the Flora (Protection) Order, 2022 (S.I. No. 356/2015). The Flora (Protection) Order affords protection to several species of plant in Ireland. This Act makes it illegal to cut, uproot or damage the listed species in any way, or to offer them for sale. This prohibition extends to the taking or sale of seed. In addition, it is illegal to alter, damage or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation.

2.1.2 EC (Birds and Natural Habitats) Regulations 2011

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) provides protection to particular species and habitats throughout

Europe. The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011.

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

2.1.3 Invasive Species Legislation

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

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

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

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

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

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

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

2.2 International Legislation

2.2.1 EU Birds Directive

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

regularly occurring migratory species and for wetlands which attract large numbers of birds. There are 25 Annex I species that regularly occur in Ireland and a total of 165 Special Protection Areas have been designated.

2.2.2 EU Habitats Directive

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

2.2.3 Water Framework Directive

The EU Water Framework Directive (WFD) 2000/60/EC is an important piece of environmental legislation which aims to protect and improve water quality. It applies to rivers, lakes, groundwater, estuaries, and coastal waters. The Water Framework Directive was agreed by all individual EU member states in 2000, and its first cycle ran from 2009 – 2015. The Directive runs in 6-year cycles, so the second cycle runs from 2016 – 2021, and the current (third) cycle runs from 2022-2027. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high water quality status where it exists. The WFD requires member states to manage their water resources on an integrated basis to achieve at least 'good' ecological status, through River Basin Management Plans (RBMP), by 2027.

2.2.4 Bern and Bonn Convention

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

2.2.5 Ramsar Convention

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

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Location

The Site of the Proposed Development measures a total of ca. 0.83Ha (development site area and road works area) and currently comprises warehouse and shed structures and associated vehicular yard.

The Site is bounded to the north-east by Richmond Road, to the west/south-west by No. 146A and Nos. 148-148A Richmond Road (pending application ABP Reg. Ref. TA29N.312352), to the south/ south-west by a residential and commercial development (Distillery Lofts) and to the east/south-east by No. 156-163 Richmond Road- the Former Distillery Warehouse (derelict brick and stone building). The River Tolka lies ca.50m to the south of the Site and is separated by hardstanding. The general surroundings of the Site comprise of commercial and residential lands for the most part, with various areas of green space associated with sports clubs, religious orders, and educational institutions scattered throughout (See Figure 1).

3.2 Description

Malkey Limited intend to apply for permission for development (Large-scale Residential Development (LRD)) at this c. 0.55 hectare site at the former Leydens Wholesalers & Distributors, No. 158A Richmond Road, Dublin 3, D03 YK12. The site is bounded to the north-east by Richmond Road, to the west/south-west by No. 146A and Nos. 148-148A Richmond Road (pending application ABP Reg. Ref. TA29N.312352), to the south/south-west by a residential and commercial development (Distillery Lofts) and to the east/south-east by the Former Distillery Warehouse (derelict brick and stone building). Improvement works to Richmond Road are also proposed including carriageway widening up to c. 6 metres in width, the addition of a c. 1.5 metre wide one-way cycle track/lane in both directions, the widening of the northern footpath on Richmond Road to a minimum of c. 1.8 metres and the widening of the southern footpath along the site frontage which varies from c. 2.2 metres to c. 7.87 metres, in addition to a new signal controlled pedestrian crossing facility, all on an area of c. 0.28 hectares. The development site area and road works area will provide a total application site area of c. 0.83 hectares.

The Proposed Development will principally consist of: a Large-scale Residential Development (LRD) comprising the demolition of existing industrial structures on site (c. 3,359 sq m) and the construction of a mixed-use development including artist studios (c. 749 sq m), a creche (c. 156 sq m), a retail unit (c. 335 sq m), and a gym (c. 262 sq m), and 133 No. residential units (65 No. one bed apartments and 68 No. two bed apartments). The development will be provided in 3 No. blocks ranging in height from part 1 No. to part 10 No. storeys as follows: Block A will be part 1 No. storey to part 4 No. storeys in height, Block B will be part 1 No. storeys to part 10 No. storeys in height (including podium) and Block C will be part 1 No. storeys to part 9 No. storeys in height (including podium). The proposed development has a gross floor area of c. 14,590 sq m and a gross floor space of c. 13,715 sq m.

The development also proposes the construction of: a new c. 204 No. metre long flood wall along the western, southern and south-eastern boundaries of the proposed development with a top of wall level of c. 6.4 metres AOD to c. 7.15 metres AOD (typically c. 1.25 metres to c.

2.3 metres in height) if required; and new telecommunications infrastructure at roof level of Block B including shrouds, antennas and microwave link dishes (18 No. antennas enclosed in 9 No. shrouds and 6 No. transmission dishes, together with all associated equipment) if required. A flood wall and telecommunications infrastructure are also proposed in the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352) under the control of the Applicant. If that SHD application is granted and first implemented, no flood wall or telecommunications infrastructure will be required under this application for LRD permission (with soft landscaping provided instead of the flood wall). If the SHD application is refused permission or not first implemented, the proposed flood wall and telecommunications infrastructure in the LRD application will be constructed.

The proposed development also provides ancillary residential amenities and facilities; 25 No. car parking spaces including 13 No. electric vehicle parking spaces, 2 No. mobility impaired spaces and 3 No. car share spaces; 2 No. loading bays; bicycle parking spaces; motorcycle parking spaces; electric scooter storage; balconies and terraces facing all directions; public and communal open space; hard and soft landscaping; roof gardens; green roofs; boundary treatments; lighting; ESB substation; switchroom; meter room; comms rooms; generator; stores; plant; lift overruns; and all associated works above and below ground.

As detailed in the Statutory Notice, the development proposes the provision of a flood wall along the western, southern and south-eastern boundaries of the proposed development in the event that the flood wall proposed in the adjoining SHD (pending decision ABP Reg. Ref. TA29N.312352) is neither granted nor implemented before this application commences development. Both applications are under the control of the Applicant.

On the preferred basis that the flood wall is not required as part of the subject application as it will have already been provided as part of the Phase 1 SHD application, an approach favouring soft landscaping will be used between Phase 1 (SHD) and 2 (LRD). The soft-landscaping approach will comprise grass and shrub planting of between 40 to 100 centimetres, allowing for the creation of a vegetative buffer adjoining Block A. A gate will also be provided between the two phases at the end of the central courtyard of phase 2 between Buildings A and B, creating a physical link between Phases 1 and 2.

Except where referenced, all assessments carried out are based on the worst-case scenario, i.e. the provision of the flood wall as this is more invasive than the soft-landscaping option.

It is noted, however, that the inclusion or omission of the floodwall has little impact on the landscaping and biodiversity enhancement proposed at the Site, with some minor changes to the locations of proposed trees in the north-western corner of the Site should the flood wall be required. Please see Mitchells & Associates drawings: RIC0001-MA-XX-XX-DR-L-100 and RIC0001-MA-XX-XX-DR-L-103 for ground floor landscaping without, and with flood wall, respectively.

The proposed layout plans showing scenarios without and with the floodwall are provided in Figure 2 and Figure 3 of this report.

3.2.1 Construction Phase

According to the Preliminary Construction Environmental Management Plan (PCEMP) prepared by DBFL Consulting Engineers (DBFL, 2023a), the Construction Phase will comprise the following:

- Site Setup.
- Service terminations and identification of any services on the site by the utility providers.
- Provision of temporary power, lighting and water services.
- Set up of site accommodation and welfare facilities.
- Identification of the trees that are required to be removed and the removal of these along with scrub and vegetation, in accordance with the arboriculture report.
- Identification of trees to be retained and protection of same.
- Identification of any hazardous materials on site
- Designation of exclusion zones for the demolition/dismantling.
- Demolition and site clearance.
- Undertaking remaining site investigations / sampling.
- Earthworks, including cut and fill and disposal of excess material off site.
- Construction of new flood defence wall.
- Construction of superstructure, roofs and glazing / windows / facades.
- Internal fit out.
- External site works/ infrastructure.
- Construction of external / hardstanding areas.
- Landscaping.

The following details are taken from the PCEMP (DBFL, 2023a) and Infrastructure Design Report (DBFL, 2023b).

3.2.1.1 Demolition

Demolition works will be carried out by a suitably qualified demolition contractor, who will be required to submit a detailed method statement including the sequence of works, segregation and disposal process and outline all proposed health and safety measures. Demolition works require the provision of temporary fencing on site to define any exclusion zones or protected areas. The works will be separated from outside traffic and passing public. Protective screens will be used, where necessary, to ensure that no debris enters the grounds of the neighbouring proposed Richmond Road Phase 1 to the west and The Distillery to the east.

3.2.1.2 Construction Waste

Any waste generated during the Construction Phase will be subject to best practice in managing waste. No waste shall be deposited within the Site lands. All waste generated during the Construction Phase will be removed from the Site by an appropriately permitted waste collection operator and dispatched to an appropriately permitted waste recovery/disposal facility (as necessary).

The removal of soils from the Site will be subject to testing to confirm its composition and to determine the appropriate treatment facility. There is the potential for contaminated soils to be encountered during excavation works at the Site. Any such materials will be excavated, stored and disposed of as per best practise guidelines.

3.2.2 Operational Phase

The Operational Phase will comprise commercial, community and residential use and retail activities consistent with the neighbouring land use in the area.

3.2.2.1 Proposed Surface Water Management

Local Authority record drawings indicate surface water infrastructure in the vicinity of the Site, with a 1350mm diameter surface water sewer at the proposed entrance to the Site under Richmond Road. Within the Site, the existing surface water network comprises of a combination of gullies, concrete channels and 100mm - 225mm diameter uPVC surface water pipes, which collects surface water runoff from the existing site, and discharges unattenuated runoff to the public surface water sewer along Richmond Road.

To manage surface water runoff from the Proposed Development, it is proposed to discharge attenuated runoff from the Site to the existing public surface water sewer at the southeast corner of the Site along Richmond Road. Surface water storage will be provided within the Site to accommodate runoff from a 1% AEP event plus 20% climate change. A combination of SUDS (sustainable urban drainage) features and traditional drainage, such as gullies and pipes will be utilised to manage runoff from the Site.

Surface water runoff from the development will be attenuated to greenfield runoff (Qbar), in accordance with the recommendations of the 2005 Greater Dublin Strategic Drainage Study (GDSDS). Surface water run-off from the surface water catchment will be controlled using a vortex flow control device (Hydrobrake or equivalent) on the surface water outlet from the catchment area.

A suite of SUDS measures will be included in the Proposed Development as per the recommendations of the GDSDS. It is noted that SUDS measures are in no way included to mitigate potential impacts to downstream European sites. Surface water will be contained within the green/blue roof system and within an underground geo cellular attenuation system located in the south-eastern corner of the Site, under the proposed road. The green/blue roof area and the green/blue terrace areas will make up a total of 70% of the total roof/terrace area.

Footpath runoff in landscaped areas at ground level will be intercepted by the specified permeable paving or adjacent soft landscaping where impermeable paving is used. All surface water collected from roads will pass through an appropriate petrol interceptor and grease trap, complying with the provision of 2 treatment stages mentioned within requirements of the CIRIA document C697.

For severe (>1%AEP) storm events, an overland surface water strategy has been developed to ensure buildings are not flooded in the case of these storm events and appropriate freeboard has been allowed for. It is intended that all surface water collected will pass through an appropriate petrol interceptor and grease trap.

3.2.2.2 Proposed Wastewater Management

There is an existing 900mm concrete foul sewer within Richmond Road. It is proposed to discharge foul flows from the Proposed Development to this existing sewer at the proposed Site entrance via an existing manhole at this location.

A pre-connection enquiry for the Proposed Development was issued to Irish Water and a copy of the Confirmation of Feasibility (COF) from Irish Water has been received. The design of the foul water network was issued to Irish Water and a Statement of Design Acceptance was also received from same (See DBFL, 2023b for details).

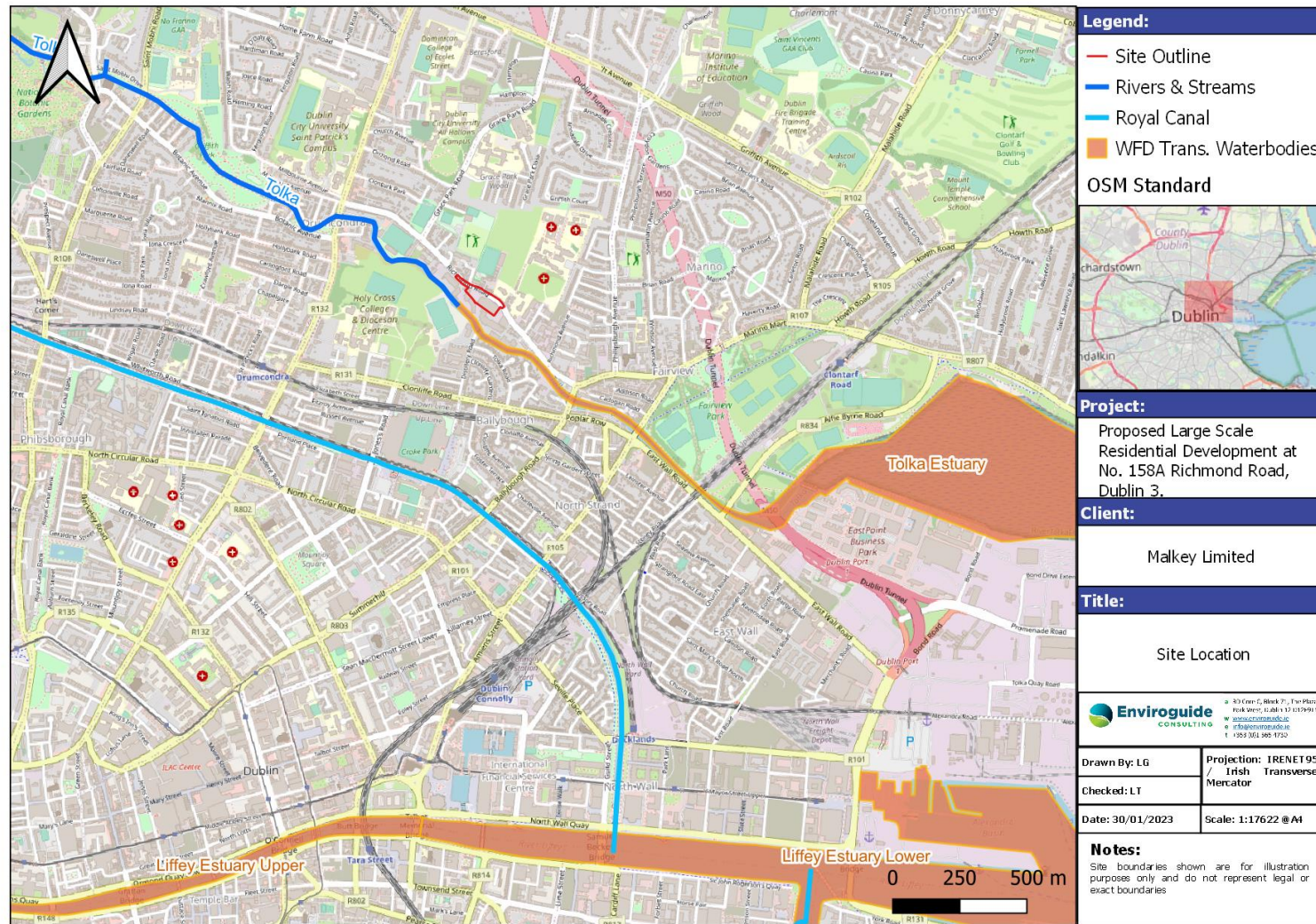


Figure 1. Site Location.

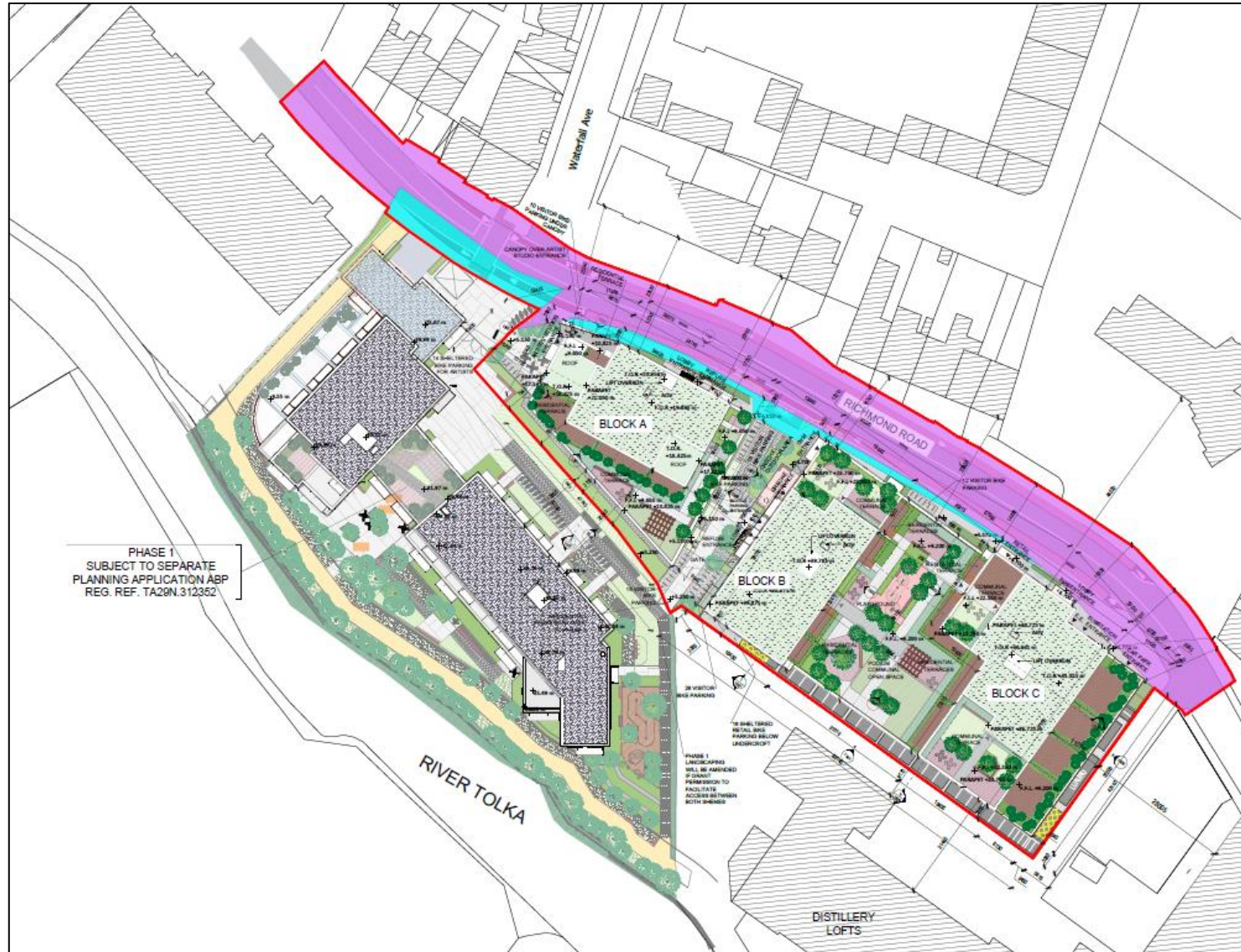


Figure 2. Proposed Site Layout if Phase 1 approved (RKD Drwg: 22001-RKD-ZZ-00-DR-A-1002A, Rev: P5, Dated January 2023)

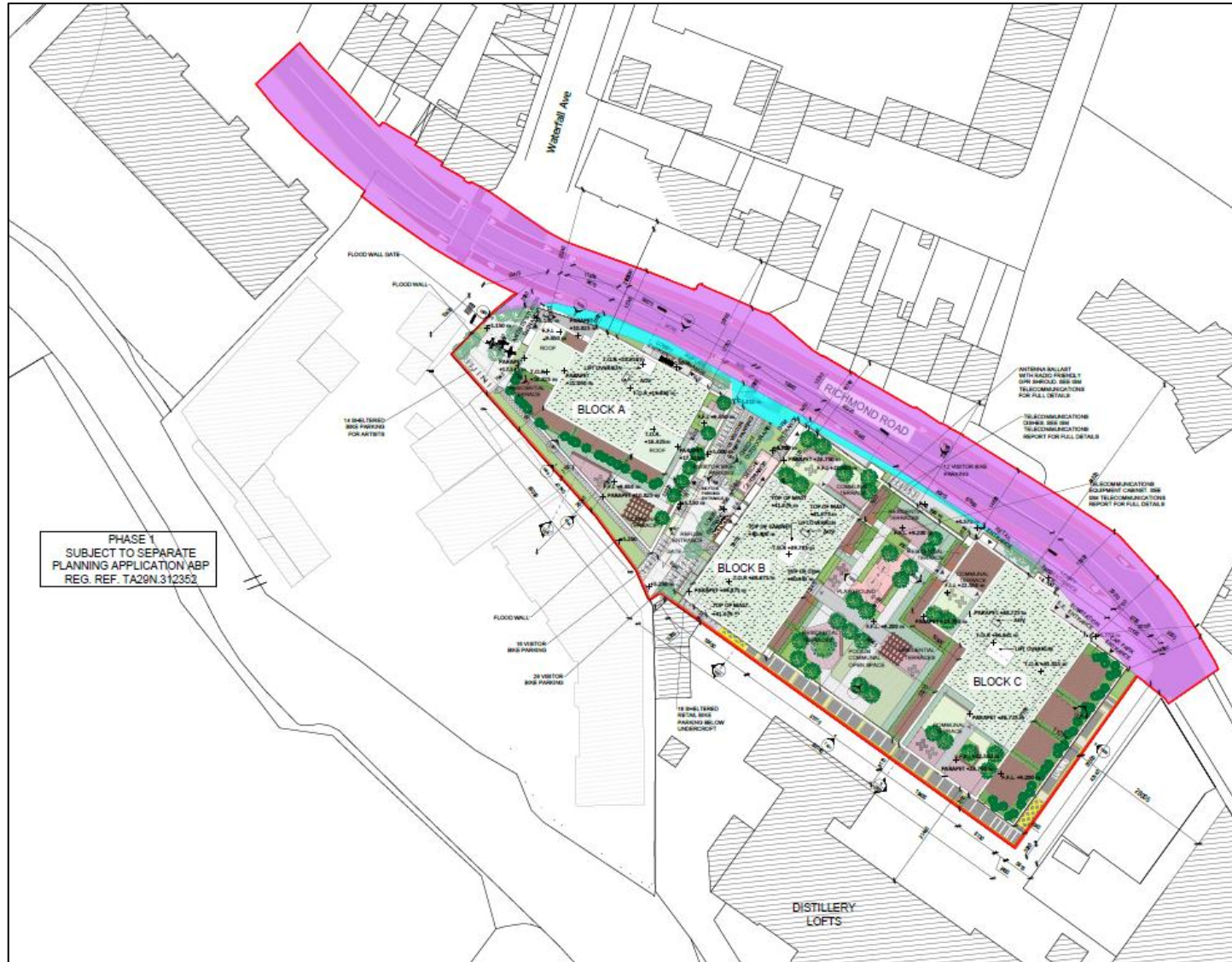


Figure 3. Proposed Site Layout if Phase 1 not approved (RKD Drwg: 22001-RKD-ZZ-00-DR-A-1002B, Rev: P5, Dated January 2023)

4 METHODOLOGY

This section details the steps and methodology employed to undertake an EclA of the Proposed Development.

4.1 Scope of Assessment

The specific objectives of the study were to:

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

4.1.1 Zone of Influence

The 'zone of influence' (ZOI) for a project is the area over which ecological features may be affected by changes as a result of the proposed development and associated activities. This is likely to extend beyond the development site, for example where there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). The ZOI will vary with different ecological features, depending on their sensitivities to an environmental change. In this instance, the ZOI is regarded to be relatively limited and within the red line boundary of the Site for most ecological receptors (with the exception of designated sites, e.g. European sites, Ramsar sites, NHAs and proposed NHAs – see below).

To determine the ZOI of the Proposed Development for *designated sites*, reference was made to the OPR Practice Note PN01 - 'Appropriate Assessment Screening for Development Management' (OPR, 2021), a practice note produced by the Office of the Planning Regulator, Dublin. This note was published to provide guidance on screening for Appropriate Assessment (AA) during the planning process, and although it focuses on the approach a planning authority should take in screening for AA, the methodology is also readily applied in the preparation of EclA Reports such as this to identify relevant designated sites potentially linked to the Proposed Development.

In addition, the guidance document published by the Department of Housing, Planning and Local Government (then DEHLG) 'Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities' (2009) was considered, which recommends an arbitrary distance of 15km as the precautionary ZOI for a plan or project being assessed for likely significant effects on European sites, stating however that this should be evaluated on a case-by-case basis.

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

- Use of up-to-date GIS spatial datasets for designated sites and water catchments – downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) to identify designated sites which could potentially be affected by the Proposed Development;

- The catchment data and hydrogeological data were used to establish or discount potential hydrological or hydrogeological connectivity between the project boundary and any designated sites.
- All designated sites within the ZOI (within 15km of the Proposed Development Site) were identified and are shown in Figure 4 and Figure 5.
- The potential for connectivity with designated sites at distances greater than 15km from the Proposed Development was also considered in this initial assessment.
- Table 1 provides details of all relevant designated sites as identified in the preceding steps. The potential for pathways between designated sites and the Proposed Development Site was assessed on a case-by-case basis using the Source-Pathway-Receptor (S-P-R) framework as per the OPR Practice Note PN01 (March 2021). Pathways considered included:
 - a. Direct pathways e.g. proximity (i.e. location within the designated site), water bodies, air (for both air emissions and noise impacts).
 - b. Indirect pathways e.g. disruption to migratory paths, 'Sightlines' where noisy or intrusive activities may result in disturbance to shy species.

4.2 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources pertaining to the Site's natural environment. The desk-top study, completed in January 2023, relied on the following sources:

- Information on species records and distributions, obtained from the National Biodiversity Data Centre (NBDC) at www.maps.biodiversityireland.ie ;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.gis.epa.ie ;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at www.gsi.ie ;
- Information on the network of designated conservation sites, boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie ;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland;
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team;
- The current conservation status of birds in Ireland taken from Gilbert et al. (2021).
- Information on the existence of permitted developments, or developments awaiting decision, in the vicinity of the Proposed Development from the National Planning Application Map Viewer (<https://myplan.ie/>) and Dublin City County Council (https://mapzone.dublincity.ie/MapZonePlanning/MapZone.aspx?map=PlanningApplication&search=Plan_Ref&tooltip=Plan_Ref).

A comprehensive list of all the specific documents and information sources consulted in the completion of this document is provided in Section 11, References.

4.3 Field surveys

4.3.1 Habitat and Flora Surveys

A Habitat Survey of the Site of the Proposed Development was conducted by Enviroguide Senior Ecologist Liam Gaffney on the 6th September 2022. Habitats were categorised according to the Heritage Council's '*A Guide to Habitats in Ireland*' (Fossitt, 2000) to level 3. The habitat mapping exercise had regard to the '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith *et al.*, 2011) published by the Heritage Council and the *National Roads Association* (NRA) (now known as Transport Infrastructure Ireland) guidance on '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*' (TII, 2009). Habitats within the surrounding area of the Proposed Development were classified based on views from the Site and satellite imagery where necessary (Google Earth, Digital Globe and OSI).

The habitat, flora and invasive species surveys were conducted during the appropriate survey period as recommended in both Smith *et al.* (2011) and NRA (2009).

4.3.2 Mammal Surveys

Mammal surveys of the site were carried out in conjunction with the habitat survey. The Site was searched for tracks and signs of mammals e.g., scats, prints, hair, dwellings. The habitat types recorded throughout the survey area were used to assist in identifying the fauna considered likely to utilise the area. This survey was carried out at a suitable time for mammal surveys, especially considering the general lack of habitat or potential for mammals on-site.

4.3.3 Bird Surveys

4.3.3.1 General Bird Survey

A bird survey was completed at the Site of the Proposed Development on 6th September 2022. Due to the general lack of any suitable nesting/roosting/foraging habitat at the Site for any bird species, the Site was walked with details of all bird species encountered recorded to assess their behaviour and numbers.

4.3.3.2 Winter Waterbird Surveys

It was noted that the Proposed Development lies along the northern bank of the River Tolka and ca.1.3km upstream of the South Dublin Bay and River Tolka Estuary SPA. Wintering waterfowl such as Light-bellied Brent Geese *Branta bernicla hrota* are known to utilise *ex-situ* inner-city grassland feeding grounds during the winter months. Based on the proximity of the Proposed Development to the Tolka estuary, and the potential for Light-bellied Brent Geese to commute along the Tolka to and from feeding grounds, the potential for collision risks posed by the proposed buildings were assessed as a precautionary measure.

Winter waterbird flight-line surveys were carried out at the Site of the Proposed Development over the course of the 2021/2022 winter by Enviroguide Ornithologist Brian McCloskey. The objective of these surveys was to determine the composition, numbers, frequency and heights

of species in passage over the Site of the Proposed Development, if any, in order to inform decisions on potential disturbance to flight-lines of birds commuting to/from roost sites and/or between feeding sites as a result of the construction of the proposed structures.

The flight-line surveys focused on those SCl species that are characterised as “poor” fliers and considered to be more at risk of collision (see Eirgrid, 2012, 2016 & 2020). The most at-risk groups (classified as ‘medium’ and ‘high’ collision risk species) include wader species; waterfowl such as geese, swan and duck species; and some raptor species. Gulls such as Herring Gull *Larus argentatus* are classed as ‘low’ collision risk species due to their superior manoeuvrability when flying (see Eirgrid, 2012, 2016 & 2020), and therefore, are not classified as ‘at-risk’ species in terms of in-flight collisions with structures.

A suite of 8 flight-line surveys was carried out at the Site between November 2021 and April 2022. The survey dates were as follows:

- 24th November 2021
- 10th December 2021
- 7th January 2022
- 21st January 2022
- 4th February 2022
- 18th February 2022
- 11th March 2022
- 5th April 2022

Each survey consisted of a 6-hour vantage point survey, either commencing at dawn or ending at dusk; to cover temporal variations in flight-line activity. The Site was observed from a suitable vantage point with surveyors using a binoculars and identification guides where necessary to identify all waterbirds in flight over the Site.

All surveys were undertaken using:

- Opticron 8x42 binoculars (or equivalent).
- Opticron 20x Telescope (or equivalent).
- Agreed survey methodology.
- A4 map of survey area.

The winter waterbird surveys were conducted at the appropriate time of year i.e., November-April. This period is sufficient for flight-line surveys of an urban site, as it covers the period that overwintering species including waterfowl & shorebirds are present in Ireland (NRA, 2009b). The full results of the winter waterbird surveys are provided in Appendix IV of this Report.

4.3.4 Bat Surveys

4.3.4.1 Dusk and Dawn Activity Surveys

The Site of the Proposed Development was examined by Wildlife Surveys Ireland from sunset for over 1.5 hours and prior to sunrise for over 1 hour on September 22nd to 23rd, 2021; and again on June 27th to 28th, 2022. The bat detector assessments that commenced prior to sunset were undertaken using an Echometer 3 (EM3) full spectrum receiver with a screen displaying the ultrasonic signals receiving and recording all ultrasonic signals received to a SD card for later analysis, and an Echometer Touch 2 Pro.

Sunset on September 22nd, 2021 was at 19.23 hours. The temperature was 18oC with 60% cloud cover and a breeze through the site. Sunrise was at 07.13 hours. The temperature was 14oC prior to sunrise.

Sunset on 27th June 2022 was at 21:57 hours while sunrise was at 04:59 hours. The night was very mild with a slight westerly breeze prior to sunrise. Temperature was 14oC prior to sunset. Wind was 14 kmph at sunset with humidity at 69%.

Both survey dates were suitable for identifying the bat fauna of a site as the temperature was sufficiently warm to encourage insect flight, the nights were dry and the temperature prior to sunrise was sufficiently warm to allow insect (and therefore, bat) flight.

Bat activity surveys were undertaken at the appropriate time of year (April-October, in suitable weather conditions) as per Bat Conservation Trust guidelines (Collins, 2016).

4.3.4.2 Potential Bat Roost Assessment

All buildings within the Site were examined for evidence of roosting bats over the two dates, as well as historical evidence of previous occupancy by means of staining, droppings, or corpses. This included an external and internal inspection of all buildings in both 2021 and 2022.

4.3.5 Other Fauna

During the course of all surveys at the Site of the Proposed Development, cognisance was taken of other species of fauna that might use the Site. These are included in the Report where applicable. It is noted that no suitable amphibian, reptile, or protected invertebrate habitat exists at the Site; due to its highly developed nature and lack of vegetation, areas of pooling etc.

4.4 Assessment

The value of the ecological resources, i.e., the habitats and species present or potentially present, was determined using the ecological evaluation guidance given in the National Roads Authority's Ecological Assessment Guidelines (NRA, 2009a), presented in Appendix I. This evaluation scheme, with values ranging from locally important to internationally important, seeks to provide value ratings for habitats and species present that are considered ecological receptors of impacts that may ensue from a proposal. As per the NRA guidelines, impact assessment is only undertaken of Key Ecological Receptors (KERs).

The assessment of the potential impact of the Proposed Development on the identified KERs was carried out with regard to the criteria outlined in the EPA Guidelines (EPA, 2022), presented in Appendix II. These guidelines set out a number of parameters such as quality, magnitude, extent and duration that should be considered when determining which elements of the Proposed Development could constitute an impact or sources of impacts.

4.5 Limitations

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

absence of species from these datasets does not necessarily confirm an absence of species in the area.

No limitations were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development.

5 BASELINE ECOLOGICAL CONDITIONS

5.1 Desk Study

5.1.1 General Site Overview

5.1.1.1 Geology, Hydrology and Hydrogeology

The Site is underlain by the Lucan Bedrock formation (LU) comprising dark limestone and shale (calp). The groundwater rock units underlying the area are classified as *Dinantian Upper Impure Limestones* (GSI, 2023). The sub-soil at the Site of the Proposed Development is classified as *Made Ground* (EPA, 2023).

Richmond Road and the surrounding area are located within the *Dublin* groundwater body, which has an overall Water Framework (WFD) status of *Good* and its risk of not achieving its status objectives under the WFD is under review according to the EPA (EPA, 2023). The Site of the Proposed Development is located on a Locally Important Aquifer - *Bedrock which is moderately productive only in local Zones (LI)*, with groundwater vulnerability in the area listed as *Low* (GSI, 2023).

The Site of the Proposed Development is located within the Liffey and Dublin Bay river catchment and the *River Tolka* sub catchment (Tolka_SC_020) and the *Tolka* (Tolka_060) sub basin. The *River Tolka* (EPA Code: 09T01) flows in a south-easterly ca.50m from the south-western boundary of the Site of the Proposed Development, and forms part of the Tolka Estuary Transitional Waterbody. This transitional waterbody has a WFD status of *Poor* and is *At risk* of not achieving its status objectives under the WFD (EPA, 2023). The River Tolka flows into the Tolka Estuary and Dublin Bay approximately 1.4km south-east of the Site of the Proposed Development. The Royal Canal is located ca.655m to the south of the Site where it passes Croke Park Stadium. The WFD status of the stretch of the Royal Canal (Code: IE_09_AWB_RCMLLE) closest to the Site is *Good*, however, the risk of it not meeting its status objectives under the WFD is under review (EPA, 2023).

5.1.2 Designated Sites

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of SACs and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of SPAs. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

NHAs are designations under the Wildlife Acts 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 policy which normally requires that planning authorities give recognition to their ecological value.

The result of the preliminary screening concluded that there is a total of 9 SACs, 8 SPAs, zero NHAs and 20 pNHAs located within the precautionary ZOI of the Proposed Development. The distances to each site listed are taken from the nearest possible point of the Proposed Development Site boundary to nearest possible point of each designated site (i.e., as the crow flies).

Table 1. Designated sites within the zone of influence (15km) of the Proposed Development.

Site Name & Code	Qualifying Interests (* = priority habitats)	Distance to Site
Special Areas of Conservation		
South Dublin Bay SAC (000210)	[1140] Tidal Mudflats and Sandflats; [1210] Annual vegetation of drift lines; [1310] <i>Salicornia</i> and other annuals colonising mud and sand; [2110] Embryonic shifting dunes	3.9 km E
North Dublin Bay SAC (000206)	[1140] Tidal Mudflats and Sandflats; [1210] Annual Vegetation of Drift Lines; [1310] <i>Salicornia</i> Mud; [1330] Atlantic Salt Meadows; [1410] Mediterranean Salt Meadows; [2110] Embryonic Shifting Dunes; [2120] Marram Dunes (White Dunes); [2130] Fixed Dunes (Grey Dunes)*; [2190] Humid Dune Slacks; [1395] Petalwort (<i>Petalophyllum ralfsii</i>)	4.3 km E
Baldoyle Bay SAC (00199)	[1140] Mudflats and sandflats not covered by seawater at low tide; [1310] <i>Salicornia</i> and other annuals colonizing mud and sand; [1330] Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>); [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	8.3 km NE
Malahide Estuary SAC (000205)	[1140] Mudflats and sandflats not covered by seawater at low tide; [1310] <i>Salicornia</i> and other annuals colonising mud and sand; [1330] Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>); [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>); [2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)	10.9km N
Ireland's Eye SAC (002193)	[1220] Perennial vegetation of stony banks; [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts	12.6 km NE
Rockabill to Dalkey Island SAC (003000)	[1170] Reefs; [1351] Harbour Porpoise (<i>Phocoena phocoena</i>)	10.4 km E
Howth Head SAC (000202)	[1230] Vegetated sea cliffs of the Atlantic and Baltic coasts; [4030] European dry heaths	9.9 km E
Wicklow Mountains SAC (002122)	[3110] Oligotrophic Waters containing very few minerals ; [3130] Mixed <i>Najas flexilis</i> lake habitat; [3160] Dystrophic Lakes ; [4010] Wet Heath ; [4030] Dry Heath ; [4060] Alpine and Subalpine Heaths ; [6130] Calaminarian Grassland ; [6230] Species-rich <i>Nardus</i> Grassland* ; [7130] Blanket Bogs (Active)* ; [8110] Siliceous Scree ; [8210] Calcareous Rocky Slopes ; [8220] Siliceous Rocky Slopes ; [91A0] Old Oak Woodlands ; [1355] Otter <i>Lutra lutra</i>	14.2 km S

Site Name & Code	Qualifying Interests (* = priority habitats)	Distance to Site
Glenasmole Valley SAC (001209)	[6210] Orchid-rich Calcareous Grassland*; [6410] <i>Molinia</i> Meadows; [7220] Petrifying Springs*	14.3km SW
Special Protection Areas		
South Dublin Bay and River Tolka Estuary SPA (004024)	[A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> ; [A130] Oystercatcher <i>Haematopus ostralegus</i> ; [A137] Ringed Plover <i>Charadrius hiaticula</i> ; [A141] Grey Plover <i>Pluvialis squatarola</i> ; [A143] Knot <i>Calidris canutus</i> ; [A144] Sanderling <i>Calidris alba</i> ; [A149] Dunlin <i>Calidris alpina alpina</i> ; [A157] Bar-tailed Godwit <i>Limosa lapponica</i> ; [A162] Redshank <i>Tringa tetanus</i> ; [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i> ; [A192] Roseate Tern <i>Sterna dougallii</i> ; [A193] Common Tern <i>Sterna hirundo</i> ; [A194] Arctic Tern <i>Sterna paradisaea</i> ; [A999] Wetlands	1.3 km E
North Bull Island SPA (004006)	[A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> ; [A048] Shelduck <i>Tadorna tadorna</i> ; [A052] Teal <i>Anas crecca</i> ; [A054] Pintail <i>Anas acuta</i> ; [A056] Shoveler <i>Anas clypeata</i> ; [A130] Oystercatcher <i>Haematopus ostralegus</i> ; [A140] Golden Plover <i>Pluvialis apricaria</i> ; [A141] Grey Plover <i>Pluvialis squatarola</i> ; [A143] Knot <i>Calidris canutus</i> ; [A144] Sanderling <i>Calidris alba</i> ; [A149] Dunlin <i>Calidris alpina alpina</i> ; [A156] Black-tailed Godwit <i>Limosa limosa</i> ; [A157] Bar-tailed Godwit <i>Limosa lapponica</i> ; [A160] Curlew <i>Numerius arquata</i> ; [A162] Redshank <i>Tringa tetanus</i> ; [A169] Turnstone <i>Arenaria interpres</i> ; [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i> ; [A999] Wetlands	4.3 km E
Baldoyle Bay SPA (004016)	[A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> ; [A048] Shelduck <i>Tadorna tadorna</i> ; [A137] Ringed Plover <i>Charadrius hiaticula</i> ; [A140] Golden Plover <i>Pluvialis apricaria</i> ; [A141] Grey Plover <i>Pluvialis squatarola</i> ; [A157] Bar-tailed Godwit <i>Limosa lapponica</i> ; [A999] Wetlands	8.7 km NE
Malahide Estuary SPA (004025)	[A005] Great Crested Grebe (<i>Podiceps cristatus</i>); [A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>); [A048] Shelduck (<i>Tadorna tadorna</i>); [A054] Pintail (<i>Anas acuta</i>); [A067] Goldeneye (<i>Bucephala clangula</i>); [A069] Red-breasted Merganser (<i>Mergus serrator</i>); [A130] Oystercatcher (<i>Haematopus ostralegus</i>); [A140] Golden Plover (<i>Pluvialis apricaria</i>); [A141] Grey Plover (<i>Pluvialis squatarola</i>); [A143] Knot (<i>Calidris canutus</i>); [A149] Dunlin (<i>Calidris alpina</i>); [A156] Black-tailed Godwit (<i>Limosa limosa</i>); [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>); [A162] Redshank (<i>Tringa totanus</i>); [A999] Wetland and Waterbirds	10.9km N
Ireland's Eye SPA (004117)	[A017] Cormorant <i>Phalacrocorax carbo</i> ; [A184] Herring Gull <i>Larus argentatus</i> ; [A188] Kittiwake <i>Rissa tridactyla</i> ; [A199] Guillemot <i>Uria aalge</i> ; [A200] Razorbill <i>Alca torda</i>	12.4 km NE
Howth Head Coast SPA (004113)	[A188] Kittiwake <i>Rissa tridactyla</i>	12.8 km E
Dalkey Islands SPA (004172)	[A192] Roseate Tern <i>Sterna dougallii</i> ; [A193] Common Tern <i>Sterna hirundo</i> ; [A194] Arctic Tern <i>Sterna paradisaea</i>	13.9 km SE
Wicklow Mountains SPA (004040)	[A098] Merlin <i>Falco columbarius</i> ; [A103] Peregrine <i>Falco peregrinus</i>	14.5 km S
Proposed Natural Heritage Areas		

Site Name & Code	Qualifying Interests (* = priority habitats)	Distance to Site
Royal Canal (002103)	<p>A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The rare and legally protected Opposite-leaved Pondweed <i>Groenlandia densa</i> (Flora Protection Order 1987) is present at one site in Dublin, between Locks 4 and 5.</p> <p><i>Tolypella intricata</i> (a stonewort listed in the Red Data Book as being vulnerable) is also in the Royal Canal in Dublin, the only site in Ireland where it is now found.</p> <p>The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods (NPWS, 2009).</p>	0.6 km S
North Dublin Bay (000206)	No site synopsis available. Refer to qualifying interests for North Dublin Bay SAC.	1.6 km SE
Grand Canal (002104)	<p>The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.</p> <p>The rare and legally protected Opposite-leaved Pondweed (<i>Groenlandia densa</i>) (Flora Protection Order 1987) is present at a number of sites in the eastern section of the Main Line, between Lowtown and Ringsend Basin in Dublin.</p> <p>The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods (NPWS, 2009).</p>	2.4 km S
Santry Demesne (000178)	<p>The site comprises the remnants of a former demesne woodland. The remaining woods are of generally good quality and include Beech (<i>Fagus sylvatica</i>), Wych Elm (<i>Ulmus glabra</i>), Ash (<i>Fraxinus excelsior</i>), Sycamore (<i>Acer pseudoplatanus</i>), Hawthorn (<i>Crataegus monogyna</i>) and Scots Pine (<i>Pinus sylvestris</i>). A wide range of herbaceous species were recorded from this woodland, including a species legally protected under the Flora Protection Order 1987, Hairy St. John'swort (<i>Hypericum hirsutum</i>), which was recorded here in 1991. This downy-leaved perennial of river banks and shady places has been recorded from only five counties in eastern Ireland, concentrated in the River Liffey valley.</p> <p>The primary importance of this site is that it contains a legally protected plant species. The woodland, however, is of general ecological interest as it occurs in an area where little has survived of the original vegetation (NPWS, 2009).</p>	3.6 km N
South Dublin Bay (000210)	No site synopsis available. Refer to qualifying interests of South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA.	3.9 km SE

Site Name & Code	Qualifying Interests (* = priority habitats)	Distance to Site
Dolphins, Dublin Docks (000201)	Dolphins, Dublin Docks pNHA is comprised of two mooring 'dolphins' in the River Liffey near Pigeon House Harbour. These 'dolphins' are used by nesting terns with approximately 350 pairs of Common Tern <i>Sterna hirundo</i> recorded in 2006 (Dublin City Biodiversity Action Plan, 2008 – 2012).	4.1 km SE
Boosterstown Marsh (001205)	Boosterstown Marsh lies approximately 5km south of Dublin City. It is separated from Merrion Strand to the east by an embankment which carries the Dublin to Wexford railway, and to the west it is bounded by the road from Dublin to Blackrock. Boosterstown Marsh is the only saltmarsh in south Dublin and, despite some concerns about the increasing salinity of the site, it remains a valuable habitat for many birds as well as containing a diverse flora including the protected plant Borrer's Saltmarshgrass (<i>Puccinellia fasciculata</i>) (NPWS, 2009).	6.6 km SE
Liffey Valley (000128)	The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare-Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. The threatened flora species: Green Figwort (<i>Scrophularia umbrosa</i>), Yellow Archangel (<i>Lamiastrum galeobdolon</i>), and the rare and legally protected Hairy St. John'swort (<i>Hypericum hirsutum</i>) have been recorded from the woodlands in this site. This site is part of the Liffey Valley Special Amenity Areas Order 1990. The site is important because of the diversity of the habitats within the site, ranging from aquatic to terrestrial. A number of rare and threatened plant species have been recorded from the site (NPWS, 2009).	7 km west
Baldoyle Bay (000199)	No site synopsis available. Refer to qualifying interests of Baldoyle Bay SAC and SPA.	8.3 km NE
Feltrim Hill (001208)	Feltrim Hill is situated in North Co. Dublin less than 1km east of the M1 motorway, and west of Portmarnock. It is a knoll-reef dating from the Carboniferous period. The site was previously known to contain two rare plant species, namely Spring Squill (<i>Scilla verna</i>) and Long-stalked Crane's-bill (<i>Geranium columbinum</i>). Quarrying at Feltrim has now removed the greater part of the limestone structure and only marginal exposures remain. Despite this the site is still valuable as a geological education site (NPWS, 2009).	8.4 km N
Sluice River Marsh (001763)	This site is located about 1 km west of Portmarnock village. The Sluice River flows into Baldoyle Estuary, less than 1 km away. The marsh backs onto the east side of the railway embankment. Mallard, Snipe, Grey Heron, Moorhen and Reed Bunting have been recorded from the marsh. The herons nest nearby. Some waterfowl from Baldoyle Estuary may use the marsh on occasions. This site is of importance as a relatively intact freshwater marsh, a habitat that is now rare in County Dublin (NPWS, 2006).	8.9km NE
Howth Head (000202)	No site synopsis available. Refer to qualifying interests of Howth Head SAC and Howth Head Coast SPA.	9.6 km E
Dodder Valley (000202)	This stretch of the River Dodder extends for about 2 km between Firhouse Bridge and Oldbawn Bridge in the south-west of Dublin City. The vegetation consists of woodland scrub mainly of willows (<i>Salix</i> spp.), but up to thirteen species of tree have been recorded. The understorey vegetation contains a good variety of plant species, including Early-purple Orchid (<i>Orchis mascula</i>) and Bugle (<i>Ajuga reptans</i>). Along the banks there	9.6km SW

Site Name & Code	Qualifying Interests (* = priority habitats)	Distance to Site
	are wild flower meadows with a good diversity of plant species. There is also a pond in the river bed at Firville which has flourished greatly since the floods of 1986. Forty-eight bird species have been recorded in the area, including Little Grebe, Kingfisher, Dipper and Grey Wagtail. Part of the river bank supports a Sand Martin colony of up to 100 pairs. The site represents the last remaining stretch of natural river bank vegetation on the River Dodder in the built-up Greater Dublin Area (NPWS, 2009).	
Fitzsimon's Wood (001753)	Fitzsimon's Wood occupies an area of approximately 8ha near Lamb's Cross in Sandyford, Co. Dublin. Despite significant recreational pressure, the basic woodland structure remains intact and as birch woodland is very rare in Co. Dublin, Fitzsimon's Wood continues to be of ecological importance (NPWS, 2009).	10.6 km S
Malahide Estuary (000205)	No site synopsis available. Refer to qualifying interests of Malahide Estuary SAC and Malahide Estuary SPA.	10.9 km NE
Dalkey Coastal Zone and Killiney Hill (001206)	This site includes the coastal stretch from Scotman's Bay to south of White Rock, the Dalkey Island group and Dalkey Sound, and Killiney Hill. This site represents a fine example of a coastal system with habitats ranging from the sub-littoral to coastal heath. The flora is well developed and includes some scarce species. The islands are important bird sites. The site also has geological importance (NPWS, 2009).	11.2 km SE
Ireland's Eye (000203)	No site synopsis available. Refer to qualifying interests of Ireland's Eye SAC and SPA.	12.6 km NE
Glenasmole Valley (001209)	No site synopsis available. Refer to qualifying interests of Glenasmole Valley SAC.	14.3 km SW
Dingle Glen (001207)	Dingle Glen is situated approximately 5km west of Killiney. It is a dry valley formed by a glacial lake overflow channel. The importance in this site lies in the variety of habitats within a relatively small area. The site is secluded and not subject to much disturbance (NPWS, 2009).	14.3 km S
Lugmore Glen (001212)	This small wooded glen is located about 2km south-east of Saggart in Co Dublin. It is quite a narrow valley cut in glacial drift. A small stream winds through the valley. The flora of the site is notable for the presence of the rare Red Data Book species, Yellow Archangel (<i>Lamiastrum galeobdolon</i>). The importance of this site is that it is a fine example of a wooded glen with a good representation of woodland plants. This type of semi-natural habitat is now scarce in Co. Dublin. The presence of a rare plant species adds to the interest of the site (NPWS, 2009).	14.9 km SW

A designated site will only be at risk from likely significant effects where a S-P-R link exists between the Proposed Development and the site.

The Proposed Development maintains an indirect impact pathway to one pNHA; the North Dublin pNHA, via the River Tolka. Although considered unlikely to occur, the potential for inadvertent surface water discharges to lead to likely significant in downstream designated Sites cannot be fully ruled out, and as such, this potential impact source warrants further assessment.

A Screening for AA for the Proposed Development (Enviroguide, 2023a), prepared in accordance with the requirements of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) as amended and the Planning and Development Act, 2000, is presented separately to this EclA. The following conclusion is extracted from the AA Screening Report:

“The Proposed Mixed-use Development at Leyden’s Wholesalers & Distributors, No. 158A Richmond Road, Dublin 3, D03 YK12 has been assessed for its potential to result in likely significant effects on European sites, with the following factors considered:

- *the nature, size and location of the Proposed Development works and possible impacts arising from the construction works.*
- *the qualifying interests and conservation objectives of the European sites*
- *the potential for in-combination effects arising from other plans and projects.*

...

*In conclusion, upon the examination, analysis, and evaluation of the relevant information, and in applying the precautionary principle; it is concluded by the authors of this report that, on the basis of objective information, **the possibility may be excluded** that the Proposed Development will have any significant effect on the European sites listed below:*

- *Rockabill to Dalkey Island SAC [003000]*
- *Baldoyle Bay SAC [000199]*
- *Ireland’s Eye SAC [002193]*
- *Howth Head SAC [000202]*
- *Malahide Estuary SAC [000205]*
- *Wicklow Mountains SAC [002122]*
- *Glenasmole Valley SAC [001209]*
- *Dalkey Islands SPA [004172]*
- *Wicklow Mountains SPA [004040]*
- *Baldoyle Bay SPA [004016]*
- *Howth Head Coast SPA [004113]*
- *Malahide Estuary SPA [004025]*
- *Ireland’s Eye SPA [004117]*

*However, upon examination of the relevant information including in particular the nature of the potential impact pathways associated with the Proposed Development, **the possibility cannot be excluded** that the Proposed Development will have a likely significant effect on the European sites listed below:*

- *South Dublin Bay SAC [000210]*
- *North Dublin Bay SAC [000206]*
- *South Dublin Bay and River Tolka Estuary SPA [004024]*

- *North Bull Island SPA [004006]*

As such, further assessment is required to establish whether any likely significant effects to the above four European sites may arise as a result of the Proposed Development. A NIS has been prepared and accompanies this application as a separate document."

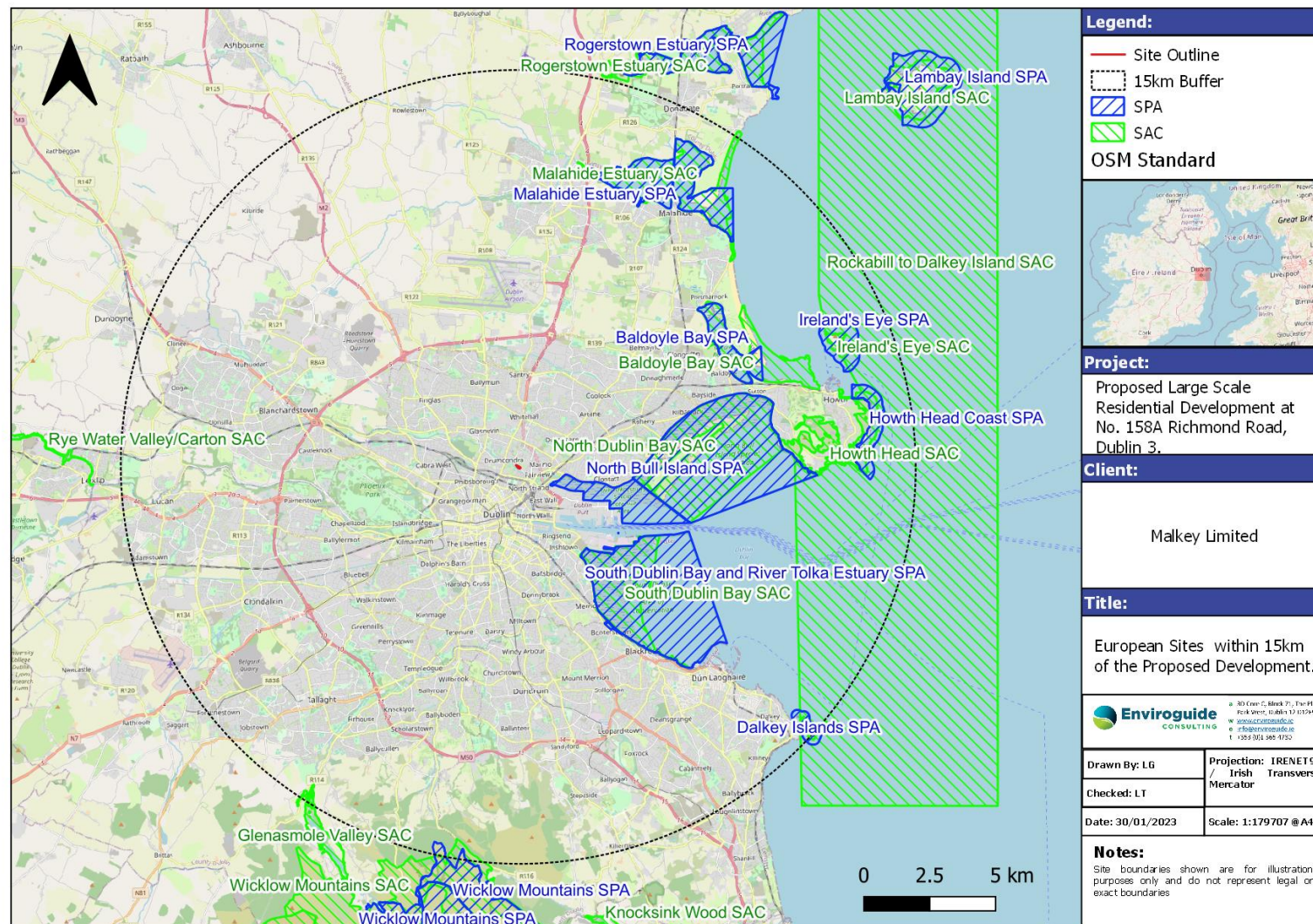


Figure 4. European sites within 15km of the Proposed Development Site.

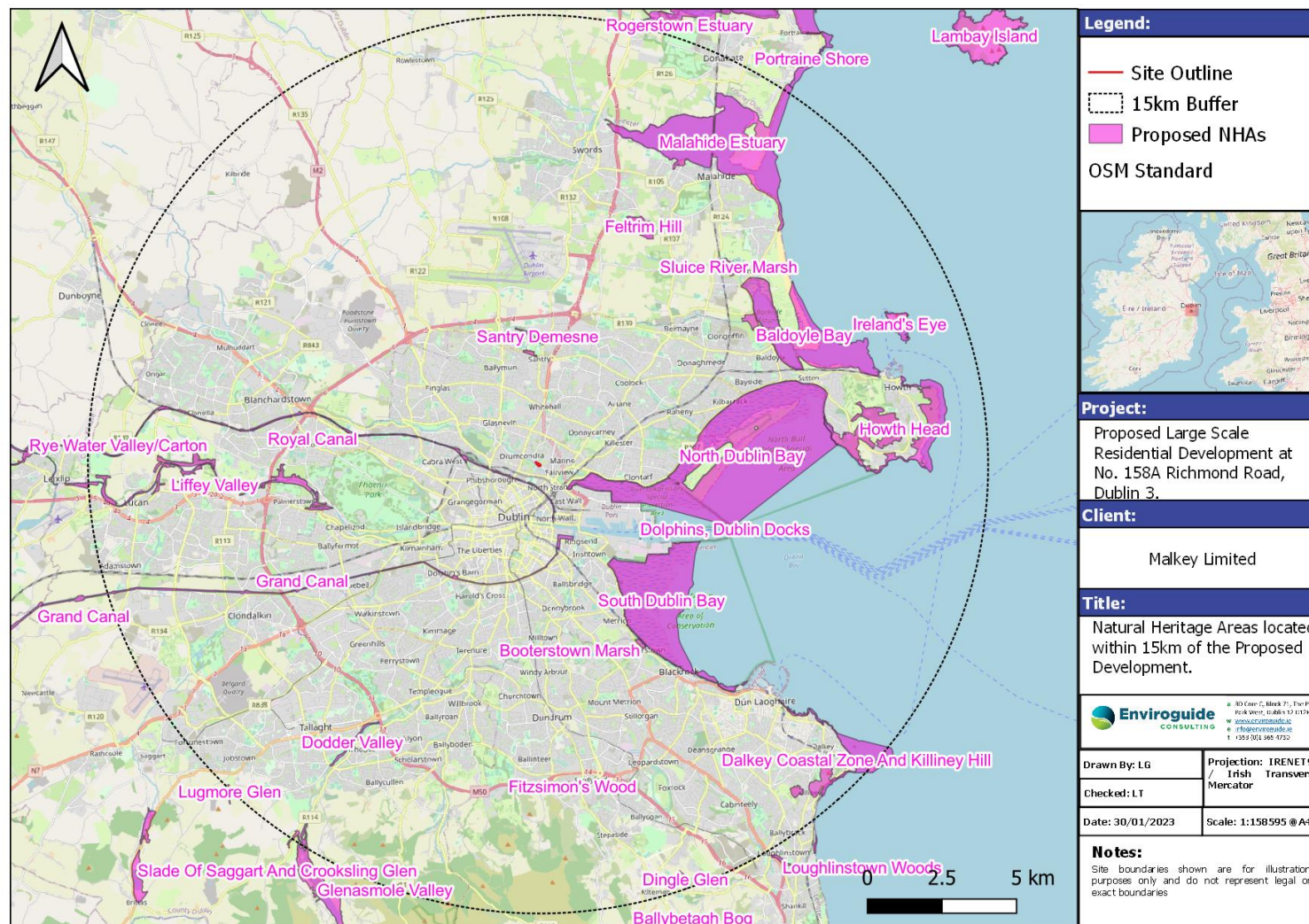


Figure 5. Proposed Natural Heritage Areas within 15km and downstream of the proposed Development Site.

5.1.3 Species and Species Groups

The Site of the Proposed Development is located within the Ordnance Survey Ireland National tetrad O13T. Species records from the National Biodiversity Data Centre (NBDC) online database for this grid square were studied for the presence of rare or protected flora and fauna. The following records were excluded:

- Records greater than 20 years old;
- Species records with no designation or conservation status (excluding mammals and birds).
- Records of species placed on the Waiting List or identified as Least Concern, Data Deficient, Near Threatened or Not Evaluated in national red lists (Lockhart et al., 2012; Wyse Jackson et al., 2016), unless they are listed on the Flora Protection Order¹

In addition, data from various sources (e.g., Flora Protection Order Map Viewer) were used to determine the presence of rare or protected species in the vicinity of the Proposed Development.

5.1.3.1 Flora

Rare and Protected Flora

No records of rare flora, e.g., those classified as 'regionally extinct', 'critically endangered', 'endangered', or 'vulnerable' on the *Ireland Red List No. 10: Vascular Plants* (Wyse-Jackson et al., 2016) or the *Ireland Red List No. 8: Bryophytes* (Lockhart et al., 2012), were identified from the NBDC records. Similarly, no records of species listed on the Flora (Protection) Order 2022 were found during this search.

Invasive Plant Species

Nine species of invasive flora were found based on a search of the O13T NBDC grid square (Table 2).

Table 2. Invasive flora records within tetrad O13T. Data are from the NBDC.

Species Name	Date of Last Record	Title of Dataset	Designation
Butterfly-bush (<i>Buddleja davidii</i>)	13/08/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	20/09/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Himalayan Honeysuckle (<i>Leycesteria formosa</i>)	23/09/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species

¹ According to Wyse Jackson et al (2016) those species listed as Critically Endangered, Endangered or Vulnerable comprise Ireland's Red-listed taxa.

Species Name	Date of Last Record	Title of Dataset	Designation
Indian Balsam (<i>Impatiens glandulifera</i>)	15/07/2013	National Invasive Species Database	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Japanese Knotweed (<i>Fallopia japonica</i>)	27/06/2021	National Invasive Species Database	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Narrow-leaved Ragwort (<i>Senecio inaequidens</i>)	13/08/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species
Sea-buckthorn (<i>Hippophae rhamnoides</i>)	29/11/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
Sycamore (<i>Acer pseudoplatanus</i>)	13/08/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species
Three-cornered Garlic (<i>Allium triquetrum</i>)	22/03/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)

5.1.3.2 Birds

Five red-listed species and fourteen amber-listed species of bird (designated as per Gilbert, Stanbury and Lewis, 2021) have been recorded within the tetrad containing the Proposed Development (Table 3) based on NBDC records.

Table 3. Red and Amber listed species recorded in tetrad O13T. Data are from the NBDC.

Species name	BoCCI	Date of last record	Title of dataset
Common Swift (<i>Apus apus</i>)	Red	09/05/2022	Swifts of Ireland
Eurasian Curlew (<i>Numenius arquata</i>)	Red	10/04/2020	Birds of Ireland
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	Red	31/08/2017	Birds of Ireland
Grey Wagtail (<i>Motacilla cinerea</i>)	Red	02/03/2013	Birds of Ireland
Redwing (<i>Turdus iliacus</i>)	Red	31/12/2011	Bird Atlas 2007 - 2011
Barn Swallow (<i>Hirundo rustica</i>)	Amber	31/12/2011	Bird Atlas 2007 - 2011
Black-headed Gull (<i>Larus ridibundus</i>)	Amber	31/12/2011	Bird Atlas 2007 - 2011
Brent Goose (<i>Branta bernicla</i>)	Amber	09/03/2018	Birds of Ireland
Common Kingfisher (<i>Alcedo atthis</i>)	Amber	22/08/2014	Birds of Ireland
Common Starling (<i>Sturnus vulgaris</i>)	Amber	31/08/2017	Birds of Ireland

Species name	BoCCI	Date of last record	Title of dataset
European Greenfinch (<i>Carduelis chloris</i>)	Amber	31/12/2011	Bird Atlas 2007 - 2011
Goldcrest (<i>Regulus regulus</i>)	Amber	31/12/2011	Bird Atlas 2007 - 2011
Herring Gull (<i>Larus argentatus</i>)	Amber	09/07/2015	Birds of Ireland
House Martin (<i>Delichon urbicum</i>)	Amber	31/08/2017	Birds of Ireland
House Sparrow (<i>Passer domesticus</i>)	Amber	14/02/2016	Birds of Ireland
Mallard (<i>Anas platyrhynchos</i>)	Amber	02/03/2013	Birds of Ireland
Mew Gull (<i>Larus canus</i>)	Amber	03/12/2022	Birds of Ireland
Mute Swan (<i>Cygnus olor</i>)	Amber	04/12/2022	Birds of Ireland
Sand Martin (<i>Riparia riparia</i>)	Amber	31/12/2011	Bird Atlas 2007 - 2011

5.1.3.3 Non-volant Mammals

Five species of mammal have been recorded within the tetrad containing the Proposed Development according to a search of the NBDC database. Two of these, West European Hedgehog (*Erinaceus europaeus*) and Irish Hare (*Lepus timidus subsp. hibernicus*), are protected under the Wildlife Acts 1976 as amended. Red Fox (*Vulpes vulpes*) is a widespread mammal species in urban environments and are not protected under the Wildlife Acts. Grey Squirrel (*Sciurus carolinensis*) is considered a high impact invasive species and are widespread in urban parts of Ireland. One record of Fallow Deer (*Dama dama*) exists from this tetrad, however, this is most likely an error as the NBDC record location is "Royal Canal" and yet the record is shown to be within a residential estate 1km to the north-east of the Site. Fallow Deer are both a high impact invasive species and protected under the Wildlife Acts 1976 as amended. Irish Hare is also likely a recording/mapping error as again this record's location is "Drumcondra, Myshall, Co. Carlow" and yet shown to be in the same residential estate as the Fallow Deer record. There is no suitable habitat for either of these species at the Site.

Table 4. Non-volant mammals recorded within tetrad O13T. Data are from the NBDC.

Species Name	Date of Last Record	Title of Dataset	Designation/Legal Status
Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	10/07/2022	Mammals of Ireland 2016-2025	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Fallow Deer (<i>Dama dama</i>)	04/12/2022	Mammals of Ireland 2016-2025	High Impact Invasive Species Regulation S.I. 477 (Ireland)

			Wildlife Acts
Irish Hare (<i>Lepus timidus subsp. hibernicus</i>)	04/12/2022	Mammals of Ireland 2016-2025	Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	17/06/2021	Hedgehogs of Ireland	Wildlife Acts
Red Fox (<i>Vulpes vulpes</i>)	28/11/2015	Atlas of Mammals in Ireland 2010-2015	Not protected

The Site contains little to no suitable habitat for hedgehog or other protected mammals e.g., Badger (*Meles meles*), Red Squirrel (*Sciurus vulgaris*), Irish Stoat (*Mustela erminea subsp. hibernica*), Eurasian Pygmy Shrew (*Sorex minutus*) and Pine Marten (*Martes martes*); due to it being a walled, gated urban site; comprised almost entirely of hardstanding. These species are not likely to occur there.

Otter (*Lutra lutra*) are known to be present along Ireland's waterbodies and coastlines. This species would not utilise the Site due to the lack of any suitable habitat for this species and the highly built-up nature of its immediate surroundings. The River Tolka, located ca.50m to the south, does support Otter along sections of its length, but according to the 'Dublin City Otter Survey' (Macklin, Brazier & Sleeman, 2019), a detailed assessment of Dublin's rivers and their tributaries for their usage and importance to Otter; the majority of Otter activity was confined to the upper reaches and central sections of the Tolka, near the M50 crossover and the Botanical gardens regions respectively. The river channel is in a relatively natural state there, with agricultural and wooded surroundings. The lower reaches of the Tolka however, where the Site of the Proposed Development is located, are not natural with high retaining (quay) walls along the banks of the river which flows in a 20-30m heavily modified, canalised channel (Macklin, Brazier & Sleeman, 2019).

Water quality along the stretch of the Tolka located to the south of the Site, based on River Hydromorphology Assessment Technique (RHAT) score (equivalent to WFD status), was classed as 'Moderate' to 'Poor', while the Human Disturbance scores that this stretch received were 'High Disturbance' to 'Very High Disturbance' (Macklin, Brazier & Sleeman, 2019). These characteristics were deemed to be important indicators of Otter suitability during the survey.

Evidence of Otter along this more urbanised stretch of the Tolka was low with the nearest Otter sign; prints, located upstream and immediately downstream of the Site. It is concluded that, although Otter has the potential to occasionally commute along this stretch of the River Tolka, it is deemed that due to the poor water quality, absence of suitable habitat, and highly disturbed nature of this stretch of the River; Otter activity would be relatively low along this section of the channel.

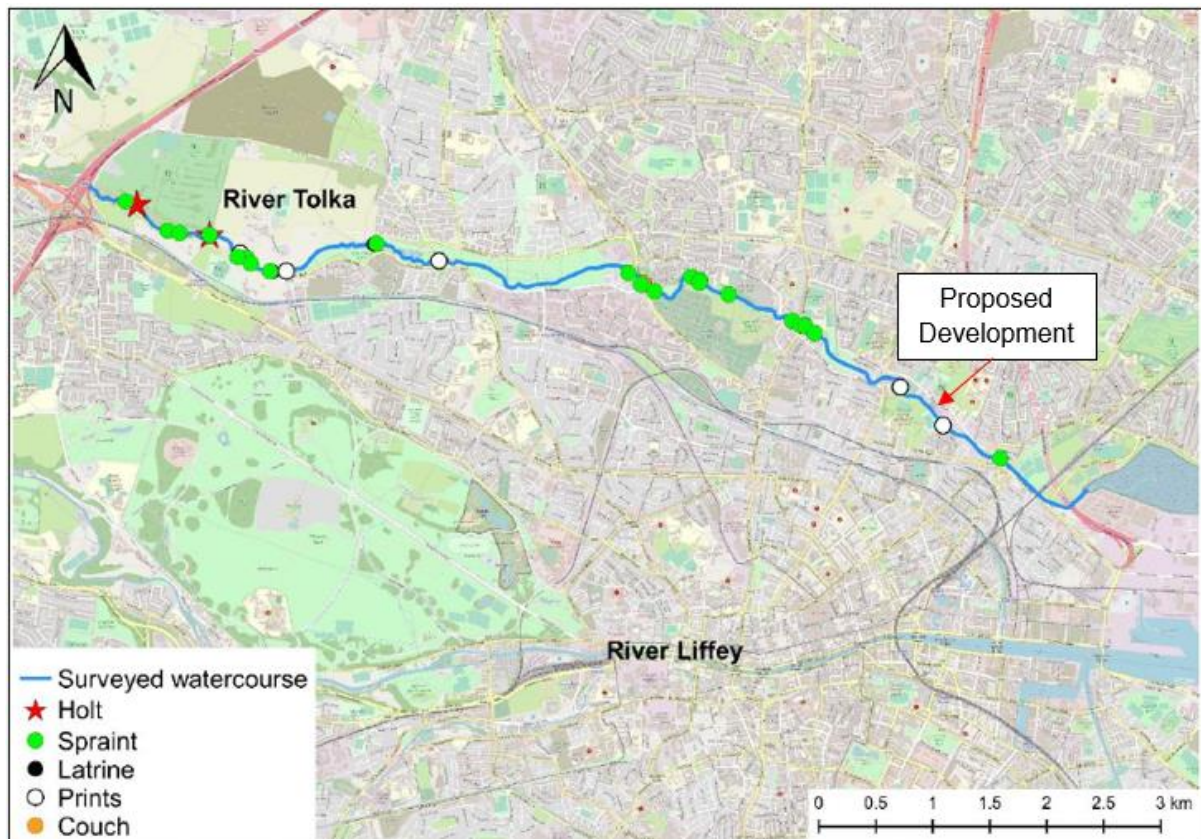


Figure 6. Image adapted from Macklin, Brazier & Sleeman, (2019) showing results of Otter Surveys of the River Tolka. Prints were recorded upstream and downstream of the Site of the Proposed Development.

5.1.3.4 Bats

No records of bats were retrieved from the NBDC for tetrad O13T.

5.1.3.5 Marine Mammals and Fish

No records of these species groups were retrieved from the NBDC for tetrad O13T.

There are two species of salmonid associated with freshwater habitats in Ireland, namely Atlantic salmon (*Salmo salar*) and Brown trout (*Salmo trutta*). The Atlantic salmon is listed as an Annex II species under the Habitat Directive.

All three lamprey species recorded in Ireland are listed on Annex II of the EU Habitats Directive. Lamprey larval burrows are characteristically found at eddies or backwaters, on the inside of bends or behind obstructions, where current velocity is below that of the main stream and where organic material tends to accumulate (Kelly & King, 2001).

European eel is a red listed species² and are currently considered to be one of the most threatened fish species in Ireland (King *et al.* 2011).

² The status of a species is designated by the relevant authorities as red, amber or green. Red list species range from vulnerable to extinct, amber list species with unfavourable conservation status or declining population and green list species are those which are not currently of conservation concern.

There are no waterbodies within the Site of the Proposed Development itself, however the River Tolka lies ca.50m south of the Site and may be utilised by the above fish species. As such, impacts to fish are assessed further in this EclA.

5.1.3.6 Amphibians and Common Lizard

Table 5. Amphibians recorded within tetrad O13T. Data are from the NBDC.

Species Name	Date of Last Record	Title of Dataset	Designation/Legal Status
Common Frog (<i>Rana temporaria</i>)	01/11/2002	Irish National Frog Database	Habitats Directive - Annex V; Wildlife Acts
Smooth Newt (<i>Lissotriton vulgaris</i>)	06/04/2020	Amphibians and reptiles of Ireland	Wildlife Acts

5.1.3.7 Invertebrates

No records of endangered invertebrate species meeting the search criteria were retrieved from the NBDC for tetrad O13T.

There are no records of White-clawed crayfish (*Austropotamobius pallipes*) within any of the grid squares encompassing the Site of the Proposed Development and it is not likely to be present on the stretch of the Tolka south of the Site of the Proposed Development (NPWS, 2013c).

There are records of Marsh Fritillary butterfly (*Euphydryas aurinia*) from Bull Island (NBDC, 2022). No individuals of this species or its associated food plant; devil's bit scabious (*Succisa pratensis*), were recorded during the field surveys and it is has no potential to utilise the Site based on the habitats therein.

5.2 Field Surveys

5.2.1 Habitats & Flora

The habitats at the Site are primarily hardstanding cover in the form of car parking area, warehouse and associated structures (BL3 – Buildings and artificial surfaces) with minor areas of recolonising bare ground (ED3) around the margins, where some vegetation has managed to establish (e.g., cracks between walls and cement ground surface). The species of plant recorded in areas of ED3 comprised of Dandelion (*Taraxacum agg.*), Short-fruited Willowherb (*Epilobium obscurum*), Greater Willowherb (*Epilobium hirsutum*), Prickly lettuce (*Lactuca serriola*), Thistle (*Cirsium sp.*) and Smooth Sowthistle (*Sonchus oleraceus*). A small section (ca.20m) of ornamental hedgerow lies within the curtilage of a private dwelling along the north-eastern boundary of the Site and within the redline boundary of the proposed upgrade works along Richmond Road. This small section of highly maintained laurel hedgerow is considered to be of negligible ecological value.

The main Site area supports no trees but is adjoined by three trees; two roadside Sycamore (within the redline boundary) (Nos. 769 and 770 in the Arboricultural Report (The Tree File, 2023)) along Richmond Road in the north-west of the Site, and a third Sycamore (tree A) a sapling growing from a wall and shed structure to the south of the Site (outside the redline Boundary). The two trees (Nos. 769 and 770) along Richmond Road will be removed to allow the road improvement works to be carried out. According to the Arboricultural Report (The

Tree File, 2023), these trees are of mediocre to poor condition and appear to offer limited sustainability. Both trees have been categorised as “C” grade specimens and exhibit symptoms that suggest that they have already been adversely affected by previous disturbance and encroachment. Tree A (the sapling) is located outside of the Site’s redline boundary and can only be removed with the permission of its legal owner. Sycamore seedlings also exist behind containers in the west of the Site.

No habitats at the Site are deemed to be of ecological value and as such are not assessed further in this report.

Although not located within the Site of the Proposed Development, the Tolka River (FW2 – Depositing/lowland river habitat) is located ca.50m south of the Site. As a precautionary measure, the river is considered in terms of potential impacts arising from the Proposed Development. This river habitat is deemed of County importance, due to its supporting salmonid species and connectivity across Dublin and to Dublin Bay.



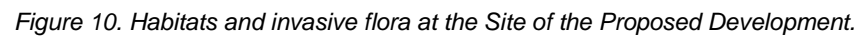
Figure 7. Example of ED3 Recolonising bare ground habitat at the Site.



Figure 8. BL3 Buildings and artificial surfaces habitat dominates the Site.



Figure 9. Ornamental hedgerow (WL1) to the north-east of the main Site area, along Richmond Road.



5.2.1.1 Invasive Flora

Two medium³ impact invasive flora species were recorded at the Site: Butterfly-bush and Sycamore. Butterfly-bush was present in flower and leaf at various locations within the Site; growing from cracks in the hard standing and walls. A large stand of this plant is located to the east of the Site in an adjacent plot. Sycamore seedlings were noted growing behind containers in the west of the Site. Three Sycamore trees are noted to be present in the vicinity of the Site.

No species of plant listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were recorded at the Site of the Proposed Development during site surveys.



Figure 11. Stand of Butterfly-bush located on an adjacent site to the east.

³ Impact status based on the 2013 Invasive Species in Ireland risk assessment. See report: Kelly, J., O'Flynn, C., and Maguire, C. 2013. Risk analysis and prioritisation for invasive and non-native species in Ireland and Northern Ireland. <http://invasivespeciesireland.com/wp-content/uploads/2013/03/Risk-analysis-andprioritization-29032012-FINAL.pdf>



Figure 12. Invasive Sycamore and Butterfly-bush located in the north-west of the Site.

5.2.2 Non-volant Mammals

No signs of any mammal species e.g., tracks, prints, scatt etc, were observed at the Site during the survey in September 2022. This is as would be expected based on the low-value habitats present onsite. Otter are known to utilise the River Tolka and are therefore considered further as a precautionary measure in this EclA.

No other non-volant mammals are considered to be KERs for the purposes of this EclA.

5.2.3 Bats

4.4.4.1 Roost Inspection Surveys

There was no evidence of bats in any of the buildings within the Site, during either of the bat surveys in 2021 and 2022. No bats emerged from or entered any building and there were no signs typical of bat roosts within the site (droppings, staining, corpses etc.).

The Bat Report (BK, 2023 – see Appendix III) states the following in relation to the bat roost potential of the Site:

“There are no bat roosts within the site and very limited potential for roosting bats in most of the site. There is a small shed to the side of the entrance at a loading dock with a rotted roof and at roof level, there are unlit timber areas to the store rooms. There are no signs of bats anywhere within the building or around it. There are two sycamore trees along Richmond Road

that have no significance for feeding or roosting opportunities for bats. There is overall very high light levels within the yard and very little to attract bats to roost."

4.4.4.2 Activity Surveys

In all, three bat species were noted during the bats activity surveys conducted at the Site in September 2021 and June 2022; common (*Pipistrellus pipistrellus*) and soprano pipistrelles (*Pipistrellus pygmaeus*) and Leisler's bat (*Nyctalus leisleri*). The Bat Report notes that the level of activity was exceptionally low given the proximity to the River Tolka.

In 2021, there were only two signals recorded on the static monitor (Songmeter Mini Bat) and one signal recorded by the hand-held bat detector. A total of 10 bat passes were recorded within the Site over the course of the entire night in June 2022.

The Bat Report (BK, 2023) states the following in relation to bat activity at the Site:

"Given the scarcity of any vegetation within the site and the high light levels, it is unsurprising that the site is not an important feeding site for bats nor is it used to commute to better feeding. The River Tolka lies to the rear of the site, and this is the main commuting and foraging area for bats within the immediate area.

...

This is not an important site for bats. The significance of the site is its proximity to the River Tolka. The absence of vegetation and the high light levels make this an unsuitable site for bats."

Based on the results of the bat surveys carried out at the Site and the nature of the habitats present therein, the Site of the Proposed Development is not an important site for bats. Some bats were recorded in the vicinity of the Site however, and with the River Tolka located nearby, the potential for impacts to bats will be considered further in this EclA.

5.2.4 Birds

5.2.4.1 Passerine species

As would be expected based on the urban nature of the Site and the lack of habitats it provides, very low bird activity was observed during the survey on the 6th September 2022. The only species recorded during the survey were common urban species such as Feral Pigeon (*Columba livia domestica*) and Herring Gull (*Larus argentatus*); both noted in flight over the Site. The Site is an active commercial premises (that has now ceased trading) and vehicular yard, entirely covered in hardstanding, and supporting no vegetation. The buildings themselves provide no suitable nesting habitat for species such as Swallows (*Hirundo rustica*), Swifts (*Apus apus*) or House martin (*Delichon urbicum*) and no evidence of these migratory species e.g., birds, nests, was observed at the Site.

The Site is of no importance or value to any passerine bird species and as such, this species group are not considered as KER's for the purposes of this EclA.

5.2.4.2 Winter Waterbird Surveys

A set of winter waterbird flight-line surveys were carried out between November 2021 and April 2022 with the aim of identifying what species fly over the Site of the Proposed

Development; to assess the potential for flight-line obstructions and collision risk, in particular to SCI species listed for relevant SPAs. Full survey metadata is provided in Appendix IV.

This assessment was primarily focused on those species considered to be “poor fliers” i.e., waterfowl and shorebirds, and most at risk of collisions or obstruction. Species fitting the above criteria that were recorded over the Site are listed below:

- Light-bellied Brent Goose
- Curlew (*Numenius arquata*)
- Grey Heron (*Ardea cinerea*)
- Mallard (*Anas platyrhynchos*)
- Little Egret (*Egretta garzetta*)

It is noted that Gull species were not recorded over the course of this flight-line assessment, as this species group are not considered to be at-risk of collisions with buildings, due to their superior manoeuvrability in flight, and general adaptation to inhabit city environments. As discussed previously, Gull species are not characterised as “poor” fliers as waterfowl species groups such as Geese are (Eirgrid, 2012; 2016 & 2020), and therefore, are not classified as ‘at-risk’ species in terms of in-flight collisions with structures.

Results of Flightline Surveys

Two species listed as SCI's for nearby SPAs were recorded over the Site during the 2021/22 winter surveys: Curlew and Light-bellied Brent Geese. The remaining waterbird species are not listed as named SCIs for any European site, however, '[A999] Wetlands and waterbirds' is a QI for both North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA and thus covers these other waterbird species, namely: Grey Heron, Mallard and Little Egret. Sparrowhawk (*Accipiter nisus*) and Buzzard (*Buteo buteo*) were also recorded in flight over the Site, but are not considered to be at-risk of collisions/flight-line obstruction.

Curlew were recorded over the Site during 6 hourly counts spread over 3 dates, with a peak count flock of 8 recorded flying overhead on 24th November 2021, flying due west at a height of approximately 100m. The average number of Curlew over the Site when present was 3.3 birds. Curlew flew over the site at heights of between 75 and 100m, with an average flight height of approx. 94m.

Several flocks of Light-bellied Brent Geese were recorded commuting at height over the Site and surrounding lands over the course of the winter surveys. Light-bellied Brent Geese were recorded during 14 hourly counts spread over 7 dates. A peak flock count of 125 geese were recorded overhead on the 11th of March, heading east at a height of approximately 150m. The average number of Light-bellied Brent Geese recorded over the Site when present was 27.7 birds. All Light-bellied Brent Geese were recorded flying at heights of between 70m and 200m, with the average flight height calculated as approx. 133m.

Light-bellied Brent Geese, a winter migrant to Ireland, are known to roost in Dublin Bay at Bull Island and commute to feed both along the Dublin Bay Coastline, and inland; to feed on a network of *ex-situ* grassland feeding grounds, largely comprised of playing pitches, golf-courses and amenity parks (BirdWatch Ireland, 2017; Pers. Obs.). The Light-bellied Brent Geese recorded during these surveys were noted to be geese commuting inland to forage at *ex-situ* grassland sites. Curlew similarly are known to forage on inland grassland sites for earthworms during high tide.

With regard to the other species noted during the winter surveys i.e., Mallard, Grey Heron & Little egret, these species were recorded almost daily during the surveys. It is observed that these birds were using the River Tolka to the south of the Site as a feeding ground rather than using it as a commuting flightline, with birds flying over the Site and dropping down to the river.

Mallard were recorded over the Site during 10 hourly counts spread over 6 dates, with a peak count flock of 4 recorded on three occasions flying overhead. The average number of Mallard over the Site when present was 2.7 birds. Mallard flew over the site at heights of between 10 and 50m, with an average flight height of approx. 23.5m.

Little Egret was recorded over the Site on one occasion on the 24th November 2021, with a single bird flying overhead at a height of approx. 30m. Grey Heron were recorded over the Site during 4 hourly counts spread over 4 dates, all records of individual birds. This species flew over the site at heights of between 20 and 75m, with an average flight height of approx. 50m. The results of the flight-line surveys are provided in Table 6.

Table 6. Records of waterbird species made as part of flight-line surveys at the Site of the Proposed Development.

Date	Time	No. of Birds	Approx. Height (m)	Flight Direction
Light-bellied Brent Goose				
24/11/2021	09:05	16	120m	North-west
	10:25	11	120m	North-west
10/12/2022	11:10	83	150m	East
	13:10	10	150m	East
	16:10	14	130m	East
07/01/2022	10:30	16	150m	North-west
21/01/2022	08:30	32	70-100m	North-west
	11:30	1	70-100m	South-east
04/02/2022	08:00	12	150m	North-west
	10:00	1	150m	South-east

Date	Time	No. of Birds	Approx. Height (m)	Flight Direction
18/02/2022	11:40	18	150m	East
	16:40	44	150-200m	East
11/03/2022	13:25	5	100m	East
	15:25	125	150m	East
Curlew				
24/11/2021	08:05	8	100m	West
	09:25	2	100m	North-west
	10:25	5	100m	North-west
10/12/2022	11:10	2	100m	East
	13:10	1	75m	East
07/01/2022	14:30	2	75-100m	South-west
Mallard				
10/12/2021	11:10	4	25m	South
07/01/2022	15:30	1	50m	West
21/01/2022	13:30	2	30m	South
04/02/2022	09:00	2	30m	West
	11:00	3	20m	West
18/02/2022	15:40	2	10m	West

Date	Time	No. of Birds	Approx. Height (m)	Flight Direction
11/03/2022	12:25	2	25m	West
	13:25	4	10m	West
05/04/2022	08:05	3	20m	East
	11:05	4	15m	North-east
Little Egret				
24/11/2021	10:25	1	30m	West
Grey Heron				
24/11/2021	08:05	1	25m	North
21/01/2022	13:30	1	75m	South-east
04/02/2022	08:00	1	50m	South-east
18/02/2022	13:40	1	20m	West

The Site of the Proposed Development holds no potential for waterbird species to use it as an important *ex-situ* roosting/ foraging site. However, five such species were recorded in flight over the Site and therefore potential impacts to these species groups will be assessed further in this EclA.

5.2.5 Amphibians and Common Lizard

No Evidence of these species groups was found at the Site.

There is no suitable habitat (breeding, refuge, foraging etc.) present at the Site of the Proposed Development for Common Frog, Smooth Newt or Common Lizard. Amphibian's such as Frog and Newt require pools or areas of standing water within which to breed and spawn, as well as vegetation/woody debris within which to forage and find refuge. The Site is devoid of such habitats being entirely comprised of hardstanding. Common Lizard also require a degree of vegetation cover/rocky substrates, of which the Site contains none. Based on the habitats

therein and its urban surroundings, there is no likelihood of the above species utilising the Site.

These species groups will, therefore, not be assessed further in this EclA.

5.3 Designated sites, habitat and species evaluation

The ecological value of designated sites, habitats, flora and fauna associated with the Proposed Development Site are evaluated below in Table 7. This evaluation follows the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009). KERs are those ecological receptors for which detailed assessment is required, on the basis of ecological value and likely significant impacts. KERs are outlined with a rationale for the evaluation provided in the relevant sections of section 5. Ecological resources of below 'Local Importance (higher value)' should not be selected as KERs for which detailed assessment is required (NRA, 2009).

Table 7. Evaluation of designated Sites, Habitats, Flora and Fauna associated with the Proposed Development Site.

Designated Sites/Species/Habitats	Evaluation	Key Ecological Receptor (KER)
SACs & SPAs	International Importance	Yes
North Dublin pNHA	National Importance	Yes
FW2 – River Tolka	County Importance	Yes
BL3 – Buildings and Artificial Surfaces	Local Importance (lower value)	No
WL1 – Hedgerow	Local Importance (lower value)	No
ED3 – Recolonising bare ground	Local Importance (lower value)	No
Non-volant mammals excluding otter	Local Importance (lower value)	No
Otter	Local importance (higher value)	Yes
Bat Assemblage	Local importance (higher value)	Yes
Passerine Birds	Local Importance (lower value)	No
Waterbirds	Local Importance (higher value)	Yes
Fish	Local Importance (higher value)	Yes
Amphibians	Local importance (lower value)	No
Common Lizard	Local importance (lower value)	No

6 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

As per the relevant guidelines, likely effects have been assessed for KERs only, as listed in Table 7.

The KERs identified as part of this EclA are as follows:

- European Sites (SACs and SPAs)
- North Dublin pNHA
- FW2 – Depositing/lowland river (River Tolka)
- Bat Assemblage
- Waterbirds
- Fish
- Otter

The following sections provide an assessment of the impact of the Proposed Development on local ecology. As per CIEEM (2018), where mitigation is fully integrated into the scheme and there is high confidence that it will be implemented, the significance of effects of the mitigated project are assessed. Where mitigation has not been integrated into the scheme, for example where it is necessary to include specific measures within a Construction Environmental Management Plan, the potential impacts are assessed in the absence of mitigation. The following is extracted from CIEEM (2018):

“Presenting the results of the assessment ‘with’ and ‘without’ mitigation allows the need for mitigation and/or compensation to be clearly identified. Where mitigation is fully integrated into the scheme and there is high confidence that it will be implemented, it may be appropriate simply to assess the significance of effects of the mitigated project, with this assessment reflecting the likelihood of the incorporated measures being successful. Where there is any uncertainty, then the with/without mitigation approach to assessment described above should be used to ensure transparency”.

In this instance, mitigation has been integrated into the surface water drainage of the Site (via SUDS), and the public lighting plan. As such, the impact of these plans is assessed in combination with other relevant impacts (e.g. habitat loss).

6.1 Construction Phase

6.1.1 Impacts on Designated Sites

A detailed assessment of impacts relating to European sites is provided in the AA Screening Report and Natura Impact Statement (NIS) (Enviroguide, 2023b) that accompany this application under separate cover. The North Dublin pNHA has no specific site synopsis and is likely designated for the protected habitats and species that the North Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA are designated for. These European sites are covered in the AA Screening Report and NIS that has been prepared as part of this application, and as such the mitigation recommended in the NIS will provide protection to the North Dublin Bay pNHA also. This pNHA is therefore not considered further as a standalone entity in this report as it has been addressed by proxy in the above mentioned reports.

6.1.2 Impacts on Habitats

In the absence of mitigation, there is a possibility of inadvertent emissions of contaminated waters containing silt, cementitious materials and/or other pollutants from the Site that could reach the River Tolka. This could result in **negative, short-term, slight** impacts at the scale of the stretches of the Tolka estuary downstream of the Site. The intervening distance of ca.50m of buildings and hard standing between the Site and the river has been taken into account when considering this potential impact in the absence of mitigation.

6.1.3 Impacts on Fauna

6.1.3.1 Fish & Otter

Potential impacts have been identified to aquatic species that may be present along the stretch of the River Tolka south of the Site of the Proposed Development. These comprise fish species such as European Eel, Atlantic Salmon, River Lamprey and Brown Trout, and Otter; species which could potentially utilise this part of the Tolka.

In the absence of suitable mitigation, there is the potential for surface water discharges containing sediment, silts and/or pollutants to enter the River Tolka during the Construction of the Proposed Development. This could result in **negative, short-term, slight** impacts at the scale of the stretches of the Tolka estuary downstream of the Site. The intervening distance of ca.50m of buildings and hard standing between the Site and the river has been taken into account when considering this potential impact in the absence of mitigation.

Appropriate mitigation to address this potential impact is detailed below in Section 7.1.1. Once these measures are followed it is deemed that this potential impact will be reduced to **negligible**, and that there will be no adverse impacts to any ecological sensitivities as a result of surface water run-off from the Proposed Development.

6.1.3.2 Bats

Although no bats were recorded roosting at the Site of the Proposed Development during the surveys in 2021 & 2022, as a precaution the potential for bats to take up residence at the Site is considered. Should bats be present during demolition, there is the risk of injury or death. This is potentially a **long-term, slight, negative** impact at a local scale.

6.2 Operational Phase

6.2.1.1 Bats

At present, night-time lighting at the Site is very high but there is no lighting along the River Tolka from the existing buildings onsite. Future operational lighting may have the potential to increase light-spill of the river, although this is unlikely due to the Site's location ca.50m back from the river and the presence of existing buildings between the Site and same. In the absence of mitigation or mitigation by design increased night-time lighting could pose a **long-term to permanent, moderate, negative** impact at the scale of the stretch of the Tolka south of the Site.

Collisions with Site Structures

Regarding collisions with proposed structures at the Site, it is noted that bats commute and forage largely using echolocation and as such are capable of navigating buildings unless

largely made of smooth reflective metal or glass. In this regard, due to the heterogenous composition of the proposed building façades, collisions are not deemed to represent a significant risk, and light spill is the more likely obstruction to bat movements in the absence of mitigation.

6.2.1.2 Waterbirds

With regard to the potential for collisions with proposed buildings during the lifetime of the Proposed Development, the following is noted.

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

The Site itself is located near a river that is utilised by waterfowl species for foraging or to commute inland. However, it is not deemed to be located in close proximity or adjacent to any SPAs designated for wetland bird populations, with the closest SPA; the South Dublin Bay and River Tolka Estuary SPA located ca.1.3km downstream. Due to the highly developed nature of the Site, there is no suitable *ex-situ* feeding/roosting/staging habitat for any SCI species of birds listed for the relevant European sites (Habitats present totally comprised of hardstanding).

Building Height

As can be seen based on the results, Light-bellied Brent Geese and Curlew were recorded flying at average heights of approx. 133m (max height of 200m) and 94m (max height of 100m) respectively. These flight heights, and the directions of flight noted, are in keeping with the objectives of these birds, i.e., commuting across urban Dublin between their roosts along the coast and inland *ex-situ* feeding grounds located across the city.

Similarly, the other species recorded over the Site e.g., Mallard, Grey Heron & Little Egret, were recorded flying at average heights of approx. 23.5m (max height of 50m), 50m (max height of 75m) and 30m (max height of 30m) respectively. These birds were using the River Tolka to the south of the Site as a feeding ground rather than using it as a commuting flightline, with birds observed flying over the Site and dropping down to the river.

The Proposed Development entails building heights ranging from 1-10 storeys (maximum 35m) in height (See Figure 13) and as such, the risk of migrating birds colliding with the structure due to its height is deemed to be negligible [Migrating species tend to commute far above this with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020). Birds that fly over the Site to commute across the city or in order to reach feeding grounds at various locations would fly lower than these migration heights, as can be seen in the results of the flight-line surveys. However, all birds were observed flying above the maximum height of the proposed buildings during the surveys, with the exception of Little Egret which was observed on one occasion at 30m height. However, this species is capable of flying at heights greater than this. Once the proposed structures are made of visible materials i.e., not entirely comprised of reflective materials such as glass, the birds flying in the vicinity of the Site will simply fly around or over them.

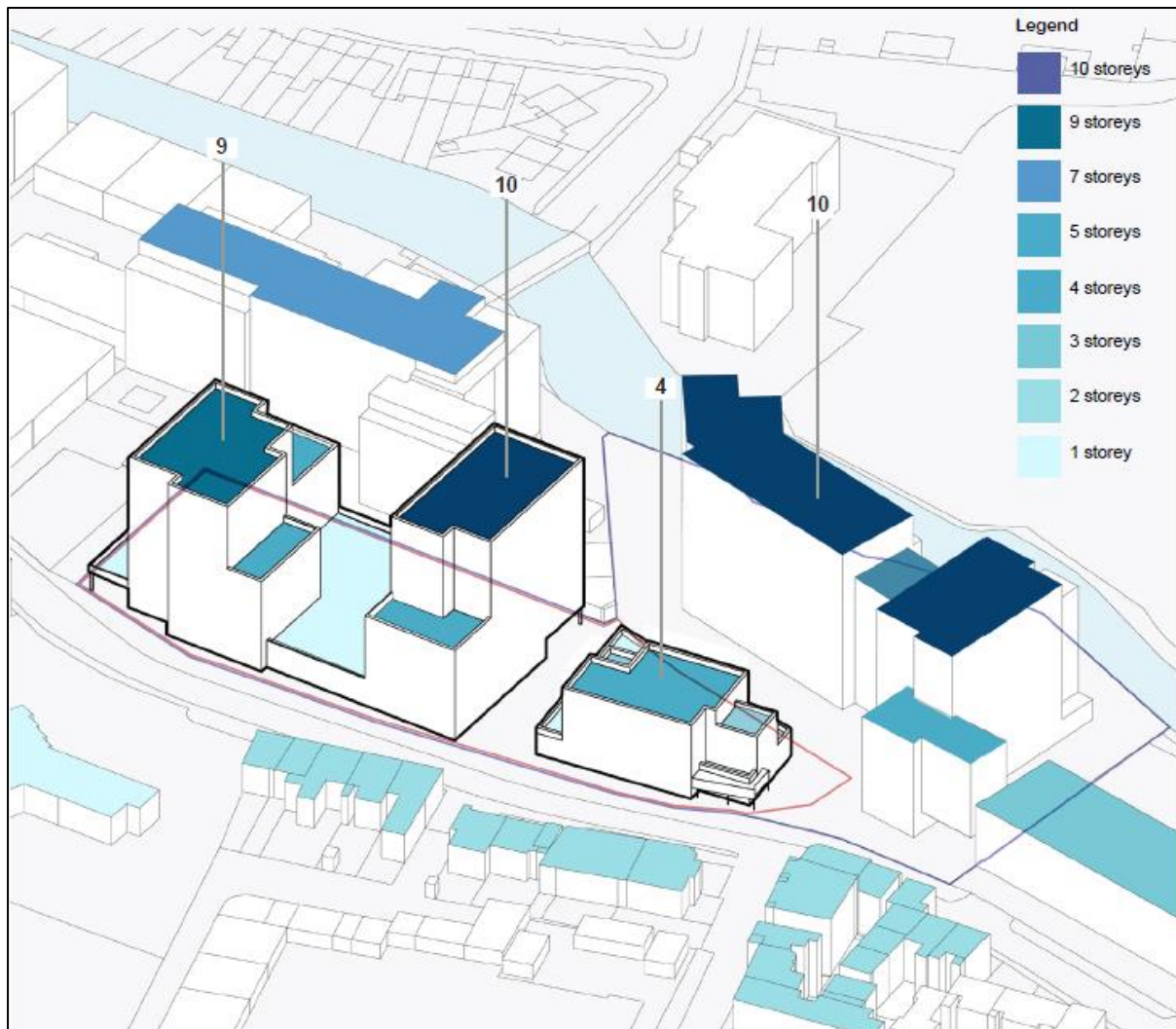


Figure 13. Proposed building heights at the Site of the Proposed Development (within the red outline) (Adapted from RKD - Architectural & Urban Design Statement (Dated January 2023).

Building Appearance

The overall façades of the proposed structures are well broken up, with areas of glazing dispersed across a varied material composition (See Figure 14). The opaque materials proposed, such as coloured brick and stone, provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity of the Site. The overall visual heterogeneity of the building façades will be sufficient to further ensure that the risk of bird collisions as a result of the Proposed Development is negligible. These architectural design features are part of the overall design of the Proposed Development and are not included as specific mitigation measures to prevent collisions, however, they will contribute to the overall effect in this regard.



Figure 14. Example of the proposed building façades (viewed from Richmond Rd), with opaque materials comprising coloured brick and stone (Adapted from RKD - Architectural & Urban Design Statement (Dated January 2023)).

As such, based on the heights of the proposed structures, the physical appearance of these structures, and as supported by the results of focused flightline surveys, it is deemed that birds including SCI species, do not have the potential to be impacted by the Proposed Development; through collisions or obstructions to flight-lines over the Site, and the risk is therefore deemed to be **negligible** in the absence of any mitigation.

6.3 Do nothing impact

If the Proposed Development were not to go ahead, the Site would remain as it is i.e., low-biodiversity value, built-land, in an urban setting.

7 MITIGATION AND ENHANCEMENT MEASURES

7.1 Construction Phase

7.1.1 Mitigation 1: Protection of designated sites, River Tolka and associated aquatic species from surface water run-off

To ensure that no contaminated waters containing silt, fuel, cementitious materials etc., have the potential to enter the River Tolka during the Construction Phase of the Proposed Development, a suite of mitigation measures will be put in place, and will be included in the final CEMP to be prepared by the contractor, along with all other relevant measures recommended to protect environmental sensitivities during the Proposed Works.

All works carried out will follow the guidelines published by Inland Fisheries Ireland (IFI) *Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters* (2016).

Construction Surface Water Management

Surface water management measures will include measures to prevent any movement of Construction Phase surface water from the Site towards the River Tolka to the south/south-west, along the existing private road located along the Site's southern boundary, or into the Richmond Road Phase 1 Site located adjacent to the south-west.

This will entail the installation of a berm/ silt-fence/ trench combination along the Site's south/south-western boundaries; to trap any construction surface waters generated at the Site and direct them to a settling pond/silt-trap apparatus within the Site for treatment and disposal.

These measures will be monitored for efficacy regularly by the contractor to ensure that they are operational and repairs will be carried out as required.

To prevent contaminated construction related surface waters entering existing surface water drains within or near the Site, particularly during the proposed upgrade works along Richmond Road, the measures listed below will be put in place to protect existing and new drains/gullies. These measures will be included as part of the contractor's final CEMP.

- Prior to construction commencing, all storm drains and curb inlets etc., within the Site area, and in close proximity, will be identified by the contractor and suitably protected from potential sediment/contaminant input. This can be accomplished by using temporary storm drain filters that come in a variety of forms e.g., porous fabric barriers such as curb inlet filters and drain guards (e.g., <https://ssienvironmental.ie/product/drain-guard/>. Other makes are available).
- The above drain protection measures will be checked, cleaned and maintained for efficacy throughout the Construction Phase, with checks carried out daily for damage or sediment loading and cleaning carried out as required

Excavations

Shallow groundwater may be encountered during excavation works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents. Water will not be discharged to open

water courses (e.g., the Tolka River) and will be disposed to foul sewer as per the conditions of a consent/licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations that must be obtained from Irish Water. Any such discharge licence will be subject to conditions regarding the flow (rates of discharge, quantity etc.); effluent quality prior to discharge and pre-treatment (e.g., settlement/filtration, hydrocarbon separation etc.) and monitoring requirements. All dewatering will be undertaken in strict compliance with the conditions of the discharge licence for the project.

A treatment system will be installed for the duration of the Proposed Development to meet the requirements of the discharge licence and will typically include a number of stages of settlement and filtration to remove sludge, suspended solids, free-phase hydrocarbons (oils) and dissolved phase hydrocarbons.

A monitoring programme will be implemented to ensure that water quality criteria set out in the discharge licence are achieved prior to discharging to the sewer.

Excavation works should be carried out at low tide regimes (in the event that there is a tidal influence on shallow groundwater at the Site).

Fuel and Chemical Storage

Appropriate storage facilities will be provided on Site. Areas of high risk include:

- Fuel and chemical storage;
- Refuelling Areas;
- Site Compound; and
- Waste storage areas.

If required, fuel, oils and chemicals will be stored on an impervious base within a bund remote from any surface water ditches or locations.

All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds shall be designed having regard to Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2904). All tank and drum storage areas shall, as a minimum, be bundled to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bundled area; or
- 25% of the total volume of substance that could be stored within the bundled area.

Concrete mixer trucks will not be permitted to wash out on Site with the exception of cleaning the chute into a container the contents of which will be removed off Site to an authorised facility.

Construction Best Practice

- Location of stilling/settling ponds will take into account groundwater vulnerability at the site and will be located in suitable areas.
- Discharge water generated during placement of concrete will be stored and removed off site for treatment and disposal.
- There will be no washing out of any concrete trucks on site.

- Specific areas for storage, delivery, loading/unloading of materials will be designated, which will have appropriate containment/spill protection measures where required.
- Leachate generation from stockpiles or waste receptacles will be prevented by using waterproof covers.
- Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.
- Appropriate bunding, storage and signage arrangements for all deleterious substances will be used.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans will be included within the Contractor's CEMP and the details of which will be communicated, resourced and implemented for the duration of the works.
- Control measures and spill clean-up equipment adequate to treat spills at the Site will be available and staff will be trained and experienced in using said equipment.
- A register will be kept of all hazardous substances either used on site or expected to be present. The register shall be available at all times and shall include as a minimum: valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.
- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- A plan for dealing with any unknown drains or services which may be encountered during the works will be set out and implemented.
- Any drains or sewers which could act as pathways for contamination from the Site will be blocked where required.
- Any surface water inflow into the main areas of excavation will be minimised where possible.

The Contractor is to ensure that no contaminated water/liquids leave the site (as surface water run-off or otherwise), enter the local storm drainage system, or directly discharge to the River Tolka. Excavations and potentially contaminated stockpiled soils will be constructed/located/sheeted in a manner that ensures water is contained within the Site boundary.

It is deemed that once the mitigation measures described in the above specialist reports are implemented in full, there will be **no potential for likely significant adverse effects** to any downstream KERs i.e., North Dublin Bay pNHA, the river Tolka or associated aquatic species, as a result of Construction Phase activities.

7.1.2 Mitigation 2: Pre-demolition Bat Surveys

A Bat specialist will be retained to examine the sheds and other structures on-site prior to their demolition for evidence of roosting bats. Should bats be present, a derogation will be acquired

from NPWS before such a structure/tree can be removed (Demolition of a confirmed bat roost without a licence is an offence under the Wildlife Act 1976 as Amended).

7.2 Operational Phase

7.2.1 Mitigation 3: Bat-friendly Lighting

The impact of increased night-time lighting as a result of the Proposed Development has been mitigated by design, through the incorporation of bat-friendly lighting measures into the project design and the lighting plan designed by Axiseng Consulting Engineers.

In order to minimise disturbance to bats commuting/foraging in the vicinity of the Site, lighting will be designed to minimise light-spill onto any hedgerows or treelines to be planted at the Site. This can be achieved by ensuring that the design of lighting adheres to the guidelines presented in the Bat Conservation Trust & Institute of Lighting Engineers *'Bats and Lighting in the UK - Bats and Built Environment Series'*, (ILP, 2018) the Bat Conservation Trust *'Artificial Lighting and Wildlife Interim Guidance'* and the Bat Conservation Trust *'Statement on the impact and design of artificial light on bats'*. Therefore, the lighting scheme will include the following as per the above guidance and the recommendations of the Bat Report (Keeley, 2022):

- The minimisation of night-time lighting emitted during both the Construction and Operational Phases of the Proposed Development (once health and safety requirements are met).
- The avoidance of direct lighting of the River Tolka, and treelines and hedgerows to be planted at the Site, as well as other areas of planting.
- Dark corridors for movement of bats along the grounds of the Site at night.
- Planting shall provide areas of darkness suitable for bats to feed and commute.
- Lighting shall be directed downwards away from the treetops and shall not illuminate the River Tolka or vegetation along its banks.
- The public lighting will have photocell/timer control to minimise lighting during the hours of darkness.
- Unnecessary light spill controlled through a combination of directional lighting and hooded / shielded luminaires.
- All luminaires shall lack UV elements when manufactured and shall be LED.
- A warm white spectrum (ideally <2700 Kelvin) to reduce blue light component
- Luminaires shall feature peak wavelengths higher than 550 nm

7.3 Enhancement Measures

At the request of Dublin City Council during the pre-application consultation process, a Biodiversity Enhancement Plan (BEP) has been prepared for this planning application (Enviroguide, 2023c). The BEP details the various measures that have been incorporated into the project design to support and enhance the biodiversity of the Site of the Proposed Development.

7.3.1 Bat boxes

As per the recommendations of the Bat Report, 4 x 2FR Schwegler bat boxes will be incorporated into the new buildings to provide bat roost options. These will be installed towards the River Tolka in 2 x 2 pairs and located on the south-western elevation of Block B, as shown in RKD drawing: 22001-RKD-ZZ-ZZ-DR-A-1301. Their installation will be advised and supervised by a suitably qualified Ecologist.

7.3.2 Swift Bricks

There is an opportunity to include habitat enhancement measures into the design of the development in the form of Swift bird boxes/bricks. Swifts (*Apus apus*) are an endangered species of bird that migrate to Ireland from South Africa each summer and traditionally nest in crevices or the eaves of buildings. The location of the Proposed Development alongside the Tolka provides a great location for swift boxes or Swift Bricks to be installed as part of the design. The swift bricks in particular are discrete hollow bricks designed to building regulation standards that can be matched to the design of the façade.

Twenty (20 no.) swift bricks have been incorporated along the parapet of Block C's south-western elevation, as shown in RKD drawing: 22001-RKD-ZZ-ZZ-DR-A-1301.

Swifts are a "clean" bird species which remove their own wastes from their nests periodically. As such, Swift bricks do not require any cleaning by the management company.

The incorporation of Swift Boxes or Bricks will help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021). The following recommendations are extracted from "Saving Swifts" by Birdwatch Ireland⁴.

Swift Bricks/boxes:

- **should be** constructed of long-lasting material and securely fixed in position.
- **should be** erected at least five metres above ground level
- **should be** erected in sheltered cool areas out of the sun, or under an overhang and /or under the eaves. Bricks can be placed at any aspect, however, as they tend not to overheat the way that externally fitted boxes can.
- **should have** a clear airspace in front for access
- **should be** grouped (side by side in rows) as swifts are colony nesters
- **should avoid** sites which can be accessed by predators- cats, squirrels, magpies, rats.
- **should avoid** sites near plate glass windows because they are a known collision hazard for birds.
- **should not be** placed directly above ledges or other obstructions. Swifts drop before taking flight and can collide with obstacles below the nest entrance.
- **should not be** one above the other.
- **should not be** near spotlights or later fit spotlights near them.

It is advised to install a **Swift calling system** to attract Swifts and encourage them to take up residence at a new site. A Swift calling system is a small speaker set-up that plays Swift calls during the summer. It should be located close to the brick entrances and has been seen to

⁴ https://birdwatchireland.ie/app/uploads/2019/10/Saving-Swifts-Guide_pdf.pdf

greatly increase the chances of Swifts using the Swift boxes/bricks. Solar panel options are possible.

An Ecologist will be instructed to set up the Swift calling system once the construction of the Proposed Development is complete. This can be with the help of active local Swift groups as required (e.g., Dublin Swift Conservation Group), who can help and advise as to the best set-up etc.

7.3.3 Bird Box Scheme

Bird boxes will be installed as part of the landscape plan, and will be overseen by the appointed ecologist, within the proposed areas of dense planting at ground floor and podium level and on the semi-mature trees to be planted on Site. The boxes will be durable and will be firm and secure to their supports, and only placed on trees that are robust and large enough to support bird boxes.

There are various standard bird box options, and two of each of the following box types⁵ will be installed:

- 'Hole type' bird boxes (28 mm hole)
 - For example, the Eco Small Bird Box, which can be found at the following link: <https://www.nhbs.com/eco-small-bird-box>
- Open fronted bird boxes for blackbirds
 - For example, the Blackbird FSC Nest Box, which can be found at the following link: <https://www.nhbs.com/blackbird-fsc-nest-box>
- Open fronted bird boxes for wrens and robins
 - For example, the Eco Robin (Open-Fronted) Nest Box, which can be found at the following link: <https://www.nhbs.com/eco-robin-open-fronted-nest-box>

Hole type bird boxes should be positioned 2-4m off the ground, with good-visibility, a clear flight line, and away from the prevailing wind direction.

The open-fronted boxes for Robins (*Erithacus rubecula*), Wrens (*Troglodytes troglodytes*) and Blackbirds (*Turdus merula*) should be installed lower than 2m but amongst dense vegetation (e.g., hedges or areas of scrub that develop within the Site), or newly planted vegetation that will grow to become dense upon establishment, and somewhere cats and other predators won't easily see or access them.

Unless the sites are very sheltered, bird boxes should be fixed facing between north and south-east to avoid the hot sun and the wettest winds. Guidance from Bird Watch Ireland regarding bird box construction and installation can be found at the following link: <https://birdwatchireland.ie/app/uploads/2019/09/Nestboxes-factsheet.pdf>. Bird box placement will be directed by an ecologist and amended as appropriate, with the results submitted to the council's Parks department on completion.

Bird boxes will be cleaned out at the end of the bird breeding season by the development management company, from September onwards, to encourage birds to return to the nest boxes.

⁵ <https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/#:~:text=Many%20people%20put%20their%20nestboxes,cats%20to%20get%20near%20it.>

7.3.4 Planting and Landscaping

The proposed landscaping at the Site will increase its ecological value compared to the current hardstanding groundcover that exists. The planting pallet has been selected with regard to the 'Councils Actions to Help Pollinators: All Ireland Pollinator Plan 2015-2020'. The planting strategy contains areas of pollinator friendly mowing regime, hedgerow planting with the recommended 75% hawthorn (*Crataegus monogyna*) plus 25% of four other native species, pollinator friendly species within the shrubs and groundcover mix and inclusion of pollinator friendly street trees.

Two main landscaped podium communal open spaces are proposed, as well as a series of roof gardens on the fifth floor. At ground floor level, areas of wildflower meadow and dense shrub planting are proposed, along with a mix of native and non-native tree and hedgerow planting. Tree cover at the Site will increase significantly compared to the current situation, with public realm tree planting proposed in three groups of Rowan (*Sorbus aucuparia* 'Shearwater seedling') along Richmond Road and Honey Locust (*Gleditsia triacanthos* 'Skyline') proposed along the courtyard entranceway between blocks A and B. Multi-stem Himalayan Birch (*Betula Jacquemontii*) is proposed for the north-western corner of the Site.

The landscaped podiums will comprise a mix of hard and soft landscaping and will incorporate a selection of roof-top trees, namely: Service Berry (*Amelanchier Canadensis*), multi-stem Rowan (*Sorbus Aucuparia* 'Cardinal Royal') and Field Maple (*Acer Campestre*) planted in groups. Alongside the tree planting, dense shrub planting and hedgerows are proposed.

The provisions of tree and shrub planting at podium level in Block A, B & C along with smaller areas of planting at level 5 of Blocks B & C, will provide increased habitat provision for local invertebrate (including urban pollinators), bats and bird species.

Green roofs are proposed for the roofs of the blocks not taken up by roof gardens/terraces. These sedum roofs allow for water attenuation and provide some habitats for insects and birds that are less likely to be disturbed than those on the ground floors. The sedum planting matts will be Irish grown and laid on a lightweight growing medium.

It is noted that all wildflower seeds will be Irish Provenance Certified Seed, from a reputable source such as Design by Nature (Wildflowers.ie). To maximise the biodiversity value of the landscaping at the Site, consideration has been made to the All-Ireland Pollinator Plan planting code (NBDC, 2015).

7.3.5 Vegetation Management

As detailed in the BEP (Enviroguide, 2023c), The following management of the proposed planting on Site will be undertaken during the Operational Phase of the Proposed Development:

- Periodic inspection for and if necessary, clean-up of litter.
- Physical removal of undesirable non-native or invasive shrub or herb species should these be recorded within the Site during the Operational Phase. Chemical control will be used only as a last resort.

- Although limited grassy areas are proposed for the Site, where possible, a pollinator-friendly mowing regime will be implemented as per the All-Ireland Pollinator Plan 2015-2020 guidance leaflet '*Gardens: actions to help pollinators*'⁶:
 - Where possible, areas of amenity grass shall be mown on a reduced mowing regime, and shall not be mown until the 15th of April. This will allow important pollinator plants such as Dandelion to flower. Thereafter grass shall be cut on a six-weekly rotation (5 cut and lifts per year). Second cut at the end of May, third cut in mid-late July to maximise growth of Clovers and other wildflowers, fourth cut at the end of August and the fifth cut after mid-October. Cutting arisings will be removed to an off-site compost facility. Mowing to be carried out when ground conditions are appropriate i.e., when soil is moist but not waterlogged. It is noted that as these areas are small amenity sections of grass for use by future residents, there is limited potential for areas of reduced mowing and that this will be adopted where possible (along margins forming a less managed verge may be appropriate).
 - Areas of wildflower meadow will be cut once annually in September as per the All-Ireland Pollinator Plan 2015-2020 guidance leaflet '*Pollinator-friendly grass cutting*'⁷. Cuttings will ideally be left lie for a few days to allow any seed to drop and then removed. Meadows managed in this way will allow wildflowers to bloom throughout the pollinator season and also provide undisturbed areas for nesting.
- Mowing will be undertaken during dry conditions to avoid compacting and potentially damaging the soil structure.
- Signage will be erected to help management adhere to the pollinator and wildlife friendly management regime, while also informing residents and visitors of these biodiversity enhancement measures (See Figure 15).
- Signage and waste bins will be provided at the Site to minimise dog fouling, which can have a negative effect on biodiversity planting by adding excessive amounts of nutrients and "over-fertilising" areas thus reducing the number and types of wildflowers that will grow.
- Small log piles/dead wood from felled trees will be retained and left in the area of dense shrub planting proposed along the south-western boundary of Block A (ground floor); to provide nesting and hibernacula for local pollinators and wildlife. Log piles will be left by management and remain undisturbed in discrete locations to allow colonisation by invertebrates and fungi as part of the biodiversity provision in this dense area of planting.
- No herbicides⁸ or fertilisers are to be used within the areas of dense shrub planting and pollinator-friendly meadow strips designated for biodiversity enhancement.

⁶ <https://pollinators.ie/wp-content/uploads/2022/12/Garden-Pollinator-Guidelines-2022-WEB.pdf>

⁷ <https://pollinators.ie/wp-content/uploads/2022/05/Pollinator-friendly-grass-cutting-A5-Flyer-2022-PRINT.pdf>

⁸ Ideally, herbicide use within the Site should be avoided entirely, and alternative weed control options (e.g. thermal control with hot water or foam) should be explored as per Pesticide Action Network UK: <https://pollinators.ie/wp-content/uploads/2021/05/Alternatives-to-herbicides-a-guide-for-the-amenity-sector.pdf>



Figure 15. Example pollinator and wildlife friendly management signage available from Pollinators.ie

7.3.6 Invertebrate Habitat

7.3.6.1 Pollinators

Wild bees (bumblebees and solitary bees) nest in small colonies and are completely focused on collecting food for themselves and their young. They have no interest in interacting with humans, are not aggressive and pose no threat to the public, even while nesting.

To help support urban pollinator species at the Site, pollinator/insect habitat, as seen in Figure 16, will be created by either:

- creating an earth bank
- scraping back some bare earth
- leaving some areas to grow wild, and/or
- by drilling holes 10cm deep in unvarnished wood for solitary bees.

Based on the nature of the Proposed Development and its inherent spatial constraints, the most appropriate pollinator habitat from the above list would be the provision of wild/semi-natural planted areas and the incorporation of some small areas of bare earth and/or low earth banks within these wilder sections. These small features can be included in within the linear strip of dense planting already proposed for the Site's south-western boundary, along Block A.



Figure 16. Examples of solitary bee habitat. Extracted from *How-to-guide: Creating wild pollinator nesting habitat* (NBDC, 2016a).

To create areas of bare ground for mining solitary bees, the following steps will be taken:

1. **Find a spot:** Choose an open, well drained, sheltered, sunny location. The soil should be gently packed, and south facing slopes are preferred. It's best to choose a variety of ground conditions, from vertical banks, to flat ground-in order to attract different types of solitary bees.
2. **Creating the habitat:** using a spade, gently clear off any vegetation on the area. Remove bits of moss, grass, and anything that blocks the bee from getting to the soil. The area can be just about any size, but aim for a minimum of 10cm by 10cm.
3. **Maintaining the habitat:** once a year clear any vegetation that has grown by manually scraping back the area to bare soil. Do this in late autumn, to avoid disturbing any nesting bees. Never use pesticides of any kind (including herbicides) on an area meant for solitary bee nesting.

Large bee or insect hotels will not be installed. Guidance from the All -Ireland Pollinator Plan states *"Don't install a large bee or insect hotel. Large bee hotels are attractive to humans, but not great for pollinators. They can encourage the spread of disease and attract predators. Avoid anything bigger than an average-sized bird box. There are many other ways to provide nesting habitats for pollinators, such as providing wild areas of undisturbed long grass, and scraping back some bare earth. If you want to make a bee hotel, make sure it is small, and position it away from bird feeders so the insects aren't easy targets."* A link to a *"How-to-guide Creating wild pollinator nesting habitat"* is available to guide the development management company in to put these habitats in place: [Pollinator-Nesting-How-to-Guide-2022-WEB.pdf](https://pollinators.ie/Pollinator-Nesting-How-to-Guide-2022-WEB.pdf) (pollinators.ie).

An appointed ecologist will oversee the creation of these pollinator habitats, which will be located within the proposed dense planting along Block A. Signage will be erected for educational purposes and to ensure management adhere to the pollinator and wildlife friendly management regime.

7.3.6.2 Hibernacula

Log piles/dead wood from felled trees will be retained within the proposed dense planting areas to provide nesting and hibernacula for local pollinators and wildlife (Figure 17). Log piles will remain undisturbed to allow colonisation by invertebrates and fungi.



Figure 17. Example design of a wildlife-friendly log pile. Extracted from *Gardening for Biodiversity* (Juanita Browne, 2020).

7.4 Enhancement Monitoring

7.4.1 Vegetation Management

The management of the areas of grassland, wildflower meadow and shrub planting at the Site will be assessed once annually during the growing season by an Ecologist, for a period of 5 years; to ensure that these areas are being managed in a way that maximises their biodiversity value, as laid out in the BEP (Enviroguide, 2023c). The Ecologist will be able to provide further guidance if required to the management company as to the management of these areas.

7.4.2 Bat Box Scheme

Bat activity at the Site and the use of bat boxes will be assessed by a licensed Bat Ecologist during the summer following their placement. The bat boxes will be registered as a bat box scheme with Bat Conservation Ireland. This should be undertaken for a minimum of 2 years.

These bat boxes will not require cleaning as they are self-cleaning by design. Bat boxes will be left undisturbed and any disturbance, if required, must be carried out under licence by a bat specialist.

7.4.3 Bird Boxes

Bird boxes will be checked annually between September and February, outside of nesting season, for the presence of old nests which will be removed. This will also allow for the condition of the boxes to be checked and maintained.

7.4.4 Swift Surveys

The Swift Bricks will be monitored annually during the summer by an Ecologist to assess whether they are being used by Swifts. Surveys will be carried out once a year for 3 years post installation with the results shared with BirdWatch Ireland and the Dublin City Council Parks, Biodiversity and Landscape Services Division to aid in the collection of data on Dublin's Swift populations.

The ecologist will also check that the Swift calling system is operational each year and advise if repairs are needed.

7.4.5 Invertebrate Habitat

Once a year, in September to avoid disturbing nesting bees, any vegetation that has grown over the bare soil habitat patches will be manually scraped back to clear the area. **No pesticides will be used within any area designated for solitary bee nesting habitat.**

New logs can be added to the wood piles as the older ones decay over a period of years. Decaying wood can support a range of fungi and microhabitats and will be maintained as part of the log pile habitat.

Table 8. Schedule of Operational Management and Monitoring Measures to be Implemented at the Site as per the BEP (Enviroguide, 2023c)

Habitat/Species	Operational Phase Management/Enhancement			Operational Phase Monitoring		
	Task	Frequency	Responsibility	Task	Frequency	Responsibility
Proposed wildflower meadow, amenity grass, tree and shrub planting	Where possible and deemed appropriate, five cuts and lifts per year of amenity grass areas, under dry conditions to avoid soil compaction. Collect cuttings and compost off site. Where possible, grass will not be mown until the 15 th of April to allow dandelions to flower. Areas along margins forming a less managed verge may be appropriate.	Where possible, cut on a six-weekly rotation. Second cut at the end of May, third cut in mid-late July to maximise growth of Clovers and other wildflowers, fourth cut at the end of August and the fifth cut after mid-October.	Management Company	<p>These habitats will be monitored to:</p> <ul style="list-style-type: none"> Monitor the establishment of the newly planted vegetation. Ensure the implementation of appropriate management regimes. Advise on the management regime and/or any changes to the management needed based on the condition of the habitats. Monitor and record the success of the enhancement measures. 	Annually for 5 years	Ecologist
	Areas of wildflower meadow will be cut once annually in September. Collect cuttings and compost off site.	Cut once annually in September.	Management Company			
	Periodic inspection for and if necessary, clean-up of litter.	To be undertaken as part of routine litter management.	Management Company			
	Removal of undesirable non-native or invasive shrub or herb species should these be recorded.	Annually or as required	Management Company			
	Signage to be erected to ensure management adhere to the pollinator and wildlife friendly management regime.	Once	Developer			
	Herbicides <u>will not be used</u> within this habitat, except in exceptional circumstances where spot control of invasive flora is required.	n/a	Management Company			
Bats	Erection of a bat box scheme in the form of 4 2FR Schwegler bat boxes which will be erected on the south-western elevation of Block B, as shown in RKD drawing: 22001-RKD-ZZ-ZZ-DR-A-130.	n/a	Developer & Bat Specialist	Inspection of bat boxes.	Within one year of erection of bat box scheme	Bat Specialist
				Register bat box scheme with Bat Conservation Ireland. This should be undertaken for a minimum of 2 years.	Two years	Bat Specialist

Habitat/Species	Operational Phase Management/Enhancement			Operational Phase Monitoring		
	Task	Frequency	Responsibility	Task	Frequency	Responsibility
				Monitoring of bat activity and any bat mitigation measures. All mitigation measures will be checked to determine that they were successful.	A full summer bat survey will be carried out post-works.	Bat Specialist
Birds	A minimum of 6 bird boxes will be installed within the dense shrub planting and on trees on the Site. The boxes will be durable. The bird box will be firm and secure to its support, and only paced on trees that are robust and large enough to support bird boxes.	n/a	Developer & Ecologist	Inspection of bird boxes for damage.	Annually	Management Company
	Removal of old nests from bird boxes.	Annually between September-February (outside breeding bird season)	Management Company	n/a	n/a	n/a
	Incorporation of 20 Swift Bricks along the parapet of Block C's south-western elevation, as shown in RKD drawing: 22001-RKD-ZZ-ZZ-DR-A-1301. Installation of Swift calling system with guidance from an Ecologist.	n/a	Developer & Ecologist	The Swift Bricks will be monitored annually during the summer by an ecologist to assess whether they are being used by Swifts. Surveys will be carried out once a year for 3 years post installation. The ecologist will also check that the Swift calling system is operational each year and advise if repairs are needed.	Annually for 3 years	Ecologist
Invertebrates	The provision of wild/semi-natural planted areas and the incorporation of some small areas of bare earth (minimum of 10cm by 10cm) and/or low earth banks within these wilder sections.	n/a	Developer initially and then Management Company	Vegetation will be cleared from designated bare soil patches manually. <u>No herbicides</u> will be used.	Annually, each September	Management Company
	Small discrete log piles will be created using the wood from the felled trees on Site. Suitable location is within the area of dense planting along the south-western boundary of the Site (behind Block A).	n/a	Management Company	New logs will be added as the older logs decay.	Several years, or as required	Management Company

8 CUMULATIVE IMPACTS

If the Proposed Development and existing or proposed projects or plans impact on the same KERs, there is potential to lead to cumulative impacts which could be of a higher level of significance. Examples of this are potential impacts on bats due to the combined loss of suitable commuting and/or foraging habitat in the locality and potential impacts on birds due to the combined loss of nesting or foraging habitat in the locality.

8.1.1 Existing granted planning permissions

A search of planning applications located within 1km of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and Dublin City Council's Planning Application Map. This distance was deemed appropriate based on the location of the Site of the Proposed Development and the types of other developments present in the area.

Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause significant effects on KERs. Long-term developments granted outside of this time period were also considered where applicable.

It is noted that the majority of developments within the vicinity of the Site of the Proposed Development are applications granted more than 5 years ago and that have since been completed. The larger, more recent applications are detailed in Table 9.

Table 9. Permitted developments and relevant developments awaiting decision located within the vicinity of the Proposed Development and an assessment of potential in-combination effects.

Planning Details	Distance from Site	Applicant Name	Summary of Development	Cumulative Impact Assessment
<p>Planning Ref: 2935/20</p> <p>An Bórd Pleanála Ref: ABP-308193-20</p> <p>ABP Decision: GRANT PERMISSION</p> <p>Decision Date: 08/04/2021</p> <p>Note: This decision has recently been quashed by the High court at Judicial Review stage. However, the scheme is still referenced as it is expected that a new application will be lodged in relation to those lands.</p>	Ca. 360m south-west.	Pairc an Chrocaigh Cuideachta Faoi Theorainn Rathaiochta	Permission for a hotel development on Lands off Clonliffe Road (formerly part of the Holy Cross College Lands), Clonliffe Road, Drumcondra, Dublin 3. The subject site encompasses an area of 0.51 hectares. The development will consist of: the construction of a 8.55m - 24.05m (above ground level) part -2 to part -7 storey 8,485 sq.m. hotel building comprising: (i) a lobby, bar/restaurant, kitchen and staff facilities at ground floor level; (ii) ancillary meeting room facilities including a breakout area and office, at first floor level and a gym; (iii) 200 - bedrooms arranged over floors 1-6; and (iv) plant room, lift overrun, green roof and 19 no. photovoltaic panels enclosed by 3m screen at roof level. The hotel is served by 38 no. car parking spaces (including 2 no. universally accessible spaces), 2 no. motorcycle spaces and 28 no. bicycle spaces accessed via a new vehicular and pedestrian entrance from within the Clonliffe College lands to the northern boundary of the site which includes a turning circle for coaches. The development also includes the demolition of the existing boundary wall, repositioning of the gate piers and widening of the entrance on Clonliffe Road to facilitate two-way traffic, the creation	<p>An Appropriate Assessment Screening accompanied this planning application (NM Ecology, 2020) and confirmed no potential for significant effects on European Sites.</p> <p>The Proposed Development will not act in-combination with this development in terms of loss of habitat for any fauna species due to the lack of suitable habitats present at the Site of the Proposed Development.</p> <p>The Proposed development will not have any in-combination effects involving this development.</p>

Planning Details	Distance from Site	Applicant Name	Summary of Development	Cumulative Impact Assessment
			of 2 no. pedestrian accesses off Clonliffe Road, and the construction of a replacement plinth boundary wall with railings along Clonliffe Road, landscaping, boundary treatments, street lighting, SuDS drainage, piped and other services, and all ancillary site development works necessary to facilitate the development (including the alteration of site levels and the upgrade of the proposed entrance from Clonliffe Road to include a pedestrian crossing and traffic lights). The development to be applied for is within the Holy Cross College landholding which includes a number of buildings on the Dublin City Council record of protected structures, including the following: the main College Building (1863); Holy Cross Church; the South Link Building; the Ambulatory; the Assembly Hall and the Red House, ref. 1901 and 1902 respectively, all at the Clonliffe College lands, Clonliffe Road, Drumcondra, Dublin 3	
Bórd Pleanála Ref: TA29N.312352. ABP Decision: Decision overdue from 22nd April 2022.	Adjacent to the west	Birkey Limited	Demolition of all existing structures on site and construction of 183 no. Build to Rent apartments and associated site works.	<p>An Appropriate Assessment Screening and Natura Impact Statement accompanied this planning application (Enviroguide, 2021) and confirmed no potential for significant effects on European Sites with mitigation also proposed.</p> <p>The Proposed development will not have any significant in-combination effects on European Sites involving this development.</p>

Planning Details	Distance from Site	Applicant Name	Summary of Development	Cumulative Impact Assessment
				<p>As it is proposed that the construction of both developments will take place concurrently, it can be expected that there will be combined noise pollution during the proposed works. However, this is not considered to represent a source of significant impacts for SCI species at Dublin Bay European Sites; due to the minimum distance of 1.3km that exists between the Site and these EU Sites [The <i>Waterbird Disturbance Mitigation Toolkit</i> (Cutts, Hemingway and Spencer, 2013) notes that noise generated at distances of over 500m are unlikely to cause disturbance impacts to waterbirds].</p> <p>As it is proposed that the construction of both developments will take place concurrently, there is the potential for combined inadvertent surface water inputs to the River Tolka. This is more of an issue of concern for the adjacent development (TA29N.312352.) due to it being located directly alongside the Tolka and involving river bank works. The Proposed Development is at a remove of ca.50m from Tolka and is separated by established buildings and hard-standing, and as such, there is a lesser risk of significant surface water run-off to the Tolka.</p> <p>An NIS and EclA have been prepared for the adjacent development (TA29N.312352.) which</p>

Planning Details	Distance from Site	Applicant Name	Summary of Development	Cumulative Impact Assessment
				<p>detail the mitigation measures required to address construction phase surface waters. Likewise, an NIS has been prepared as part of this Proposed Development application and is provided under separate cover. The NIS and this EcIA include measures to mitigate any potential surface water impacts arising during the construction works.</p> <p>The Proposed Development will not act in-combination with this development in terms of loss of habitat for any fauna species due to the lack of suitable habitats present at the Site of the Proposed Development.</p>

Relevant Policies and Plans

The following policies and plans were reviewed and considered for possible in-combination effects with the Proposed Development.

- Dublin City Biodiversity Action Plan 2015 - 2020
- Dublin City Development Plan 2022-2028
- Dublin City Council Development Plan 2022-2028 Appropriate Assessment
- Dublin City Council Development Plan 2022-2028 Strategic Flood Risk Assessment
- Richmond Road Area Action Plan 2007

Upon examination of the above listed plans and projects within the general vicinity of the Proposed Development, it is concluded that no cumulative impacts between the Proposed Development and any plans or policies are anticipated.

9 RESIDUAL IMPACTS

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated. Table 10 provides a summary of the impact assessment for the identified Key Ecological Resources (KERs) and details the nature of the impacts identified, mitigation proposed and the classification of any residual impacts.

Table 10. Summary of potential impacts on KER(s), mitigation proposed and residual impacts.

Key Ecological Receptor	Level of Significance	Potential Impact	Impact Without Mitigation				Proposed Mitigation	Residual Impact
			Quality	Scale	Duration	Significance		
European Sites (SACs and SPAs)	International Importance	Potential impacts to European sites and nationally designated sites are assessed in the Appropriate Screening and Natura Impact Statement that accompany this application under separate cover.						
North Dublin pNHA	National Importance							
FW2 – Depositing/lowland river (River Tolka)	County Importance	Reduction in water quality as a result of potential contamination due to Construction Phase of Proposed Development.	Negative	Stretch of estuary downstream	Short-term	Slight	Mitigation measures proposed in section 7.1.1 will ensure that no contamination/sedimentation of the Tolka occurs during the Construction Phase.	Imperceptible
Bat Assemblage	Local Importance (Higher Value)	Loss of commuting/foraging habitat due to increased night-time lighting at the Site and of the Tolka. Risk of injury or death should roosting bats be present during demolition works.	Negative	Stretch of the Tolka south of the Site. Local scale.	Long-term/permanent Long-term	Moderate Slight	Bat friendly lighting incorporated into the lighting plan as per section 7.2.1. Avoidance of light-spill on to the River Tolka. Pre-demolition survey of structures by a Bat ecologist.	Imperceptible

Key Ecological Receptor	Level of Significance	Potential Impact	Impact Without Mitigation				Proposed Mitigation	Residual Impact
			Quality	Scale	Duration	Significance		
Waterfowl and Shorebirds	Local Importance (Higher Value)	No impacts anticipated with regards <i>ex-situ</i> habitat loss, collision with buildings or flight-line obstruction, as detailed in section 6.2.1.2.	N/A	N/A	N/A	N/A	No mitigation required.	Imperceptible
Fish and Otter	Local Importance (Higher Value)	Reduction in water quality as a result of potential contamination due to Construction Phase of Proposed Development.	Negative	Stretch of estuary downstream	Short-term	Slight	Mitigation measures proposed in section 7.1.1 will ensure that no contamination/sedimentation of the Tolka occurs during the Construction Phase.	Imperceptible

10 CONCLUSION

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

There will be an overall positive impact in terms of biodiversity as a result of the Proposed Development; through the general increase in vegetation and tree cover at the Site compared to the current situation (entirely hard-standing ground cover). It is expected that this will increase the habitat provision at the Site for local insect, bird and bat species in the area.

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APPENDIX I – VALUE OF ECOLOGICAL RESOURCES

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

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

County Importance	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. • Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. • County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP (Biodiversity Action Plan), if this has been prepared. • Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local Importance (Higher Value)	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; - 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)	<ul style="list-style-type: none"> • 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.

APPENDIX II – EPA IMPACT ASSESSMENT CRITERIA

Criteria used to define quality of effects.

In line with the EPA Guidelines (EPA, 2022), the following terms are defined when quantifying the quality of effects:

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

Criteria used to define significance of effects.

In line with the EPA Guidelines (EPA, 2022), the following terms are defined when quantifying significance of impacts:

Significance of Effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect which alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Criteria used to define duration of effects.

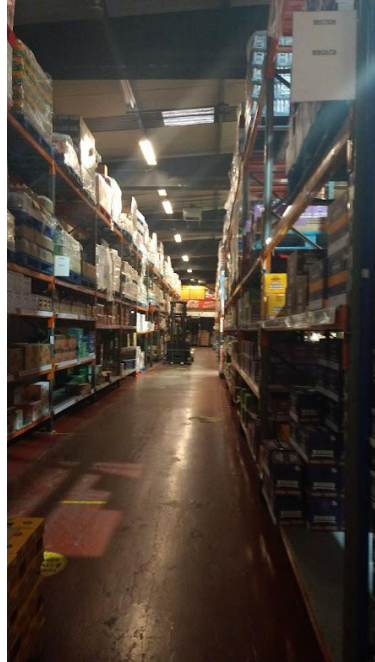
In line with the EPA Guidelines (EPA, 2022), the following terms are defined when quantifying duration and frequency of effects:

Quality of Effects	Definition
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years

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

APPENDIX III – BAT SURVEY REPORT

A Bat Assessment For A Proposed Mixed-Use Development at the Existing Leyden's Wholesalers and Distributors Richmond Road, Dublin 3



Brian Keeley B.Sc. (Hons) in Zool. Wildlife Surveys Ireland

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
A1	For Approval	BK	DM	BK / DM	02/09/2022
A2	For Release	BK	DM	BK/DM	27/02/2023

Signed

Brian Keeley

Introduction

Bats are a widespread element of the Irish fauna. They are known to occur from much of the rural landscape and to a lesser extent, the urban environment and here they occupy buildings and occasionally trees for short or long periods.

Houses and other buildings are vital elements of the annual cycle of all Irish bat species and at no time more so than the period May to August, but many bats may also avail of buildings as hibernation sites. In sites such as the proposed development site where there are established buildings, there is the potential for roosting within any one of the buildings if appropriate conditions are met to provide safe shelter from the elements and predation.

Furthermore, trees near the site proposed for development may have roost potential. Buildings close to a river or major waterbody offer high roost potential as such sites are often good feeding areas because of the increased abundance and diversity of insects supported by water.

Changes to a site including demolition or building repair and restoration, tree and hedgerow removal may destroy roosts, placing bats at risk during such procedures and may reduce the options available to bats as a roosting site and may also affect their feeding and commuting activity.

Bats are protected by Irish and EU law and to prevent unlawful injury or death, it is essential that a full understanding of the site is available in advance to protect the resident bats from unintentional disturbance, injury, or death and to create a pathway by which a legal derogation and exemption may be designed in consultation with the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Methodology

The Proposed development site at Richmond Road was examined from sunset for over 1.5 hours and prior to sunrise for over 1 hour on September 22nd to 23rd, 2021 and again on June 27th to 28th, 2022. The bat detector assessments that commenced prior to sunset was undertaken equipped with an Echometer 3 (EM3) full spectrum receiver with a screen displaying the ultrasonic signals receiving and recording all ultrasonic signals received to a SD card for later analysis and an Echometer Touch 2 Pro. All buildings within the proposed development area were examined for evidence of bats over the two dates for evidence of roosting bats as well as historical evidence of previous occupancy by means of staining, droppings, or corpses. This included an external and internal inspection of all buildings in both years.

In addition to this, a static monitor (a Songmeter Mini Bat) was placed at the eastern section of the site in 2021 and at the western end of the site in 2022 to evaluate bat activity within the site and close to the River Tolka.

Sunset on September 22nd, 2021 was at 19.23 hours. The temperature was 18°C with 60% cloud cover and a breeze through the site. Sunrise was at 07.13 hours. The temperature was 14°C prior to sunrise.

Sunset on 27th June 2022 was at 21:57 hours while sunrise was at 04:59 hours. The night was very mild with a slight westerly breeze prior to sunrise. Temperature was 14°C prior to sunset. Wind was 14 kmph at sunset with humidity at 69%.

Both survey dates were suitable for identifying the bat fauna of a site as the temperature was sufficiently warm to encourage insect flight, the nights were dry and the temperature prior to sunrise was sufficiently warm to allow insect (and therefore, bat) flight.

Existing Environment

Bat Survey Results

Bat roosts within the site: None

There are no bat roosts within the site and very limited potential for roosting bats in most of the site. There is a small shed to the side of the entrance at a loading dock with a rotted roof and at roof level, there are unlit timber areas to the store rooms. There are no signs of bats anywhere within the building or around it. There are two sycamore trees along Richmond Road that have no significance for feeding or roosting opportunities for bats. There is overall very high light levels within the yard and very little to attract bats to roost.

Feeding and commuting bats

Given the scarcity of any vegetation within the site and the high light levels, it is unsurprising that the site is not an important feeding site for bats nor is it used to commute to better feeding. The River Tolka lies to the rear of the site, and this is the main commuting and foraging area for bats within the immediate area.

In all, three bat species were noted (common (*Pipistrellus pipistrellus*) and soprano pipistrelles (*Pipistrellus pygmaeus*) and Leisler's bat (*Nyctalus leisleri*)) but the level of activity was exceptionally low, given the proximity of the river. Surveys conducted upriver by Brian Keeley in Griffith Park (An Evaluation of (1) A Poplar tree proposed for urgent felling for bat roosts in March 2021, and (2) The Potential Impacts of a Proposed Temporary Building, a trench and hedgerow removal upon bats at Griffith Park, Drumcondra in July 2021) added a further species (Daubenton's bat) to this list, but this species was not noted during the surveys of the Site of the Proposed Development.

In all, there were 10 bat passes recorded within the site in the entire night in June 2022 and two species in two bat passes in 2021 (no Leisler's bats).

Bat Activity 2022

A common pipistrelle was noted during the activity survey at 22.24 and 22.25 hours in June 2022.



Common pipistrelle location at 22.24 – 22.25 hours

A Leisler's bat was noted at 22.29 hours and again at 22.30 hours in June 2022.



Leisler's bat at 22.29 hours and flying westwards from here at 22.30 hours

Bat data recorded on a static Songmeter Mini Bat 27th to 28th June 2022

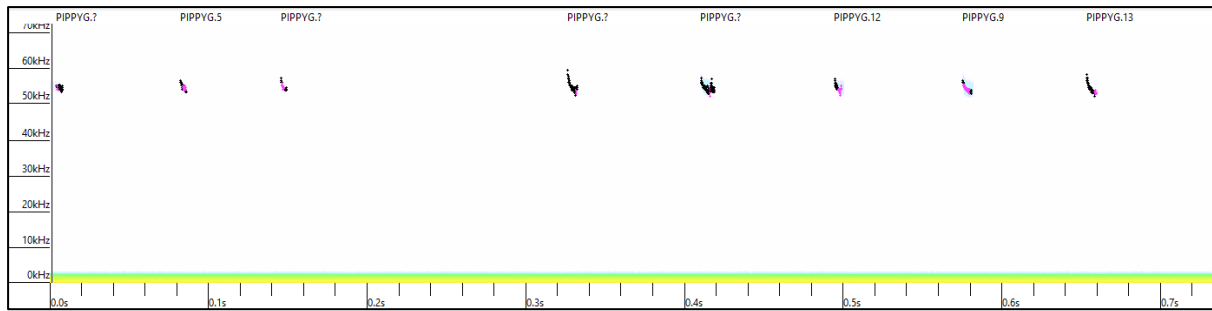
DATE	TIME	AUTO ID*	PULSES	MATCHING	FILES	MANUAL ID
27/06/2022	22:24:32	NoID	16	0	1	common pipistrelle
27/06/2022	22:28:58	Leisler's bat	13	13	1	Leisler's bat
27/06/2022	23:42:47	Leisler's bat	16	13	1	Leisler's bat
27/06/2022	23:48:28	common pipistrelle	29	29	1	common pipistrelle
28/06/2022	00:45:16	common pipistrelle	20	20	1	common pipistrelle
28/06/2022	01:15:52	Leisler's bat	2	2	1	Leisler's bat
28/06/2022	01:27:31	common pipistrelle	12	12	1	common pipistrelle
28/06/2022	02:35:52	common pipistrelle	21	20	1	common pipistrelle
28/06/2022	03:07:27	Leisler's bat	16	15	1	Leisler's bat
28/06/2022	03:55:33	common pipistrelle	16	16	1	common pipistrelle

Bat Activity 2021

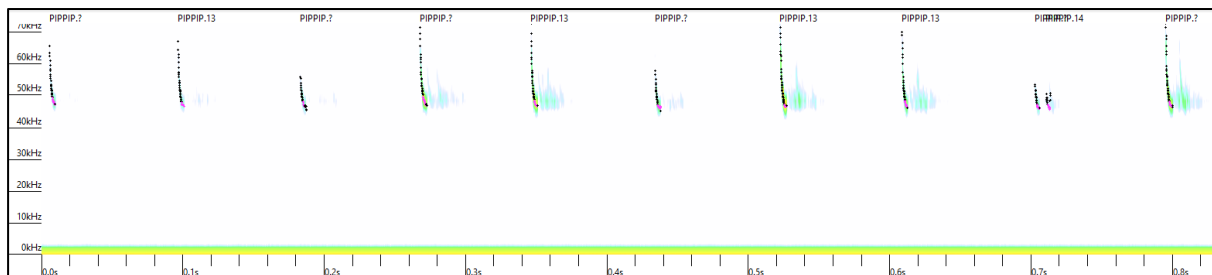
In 2021, there was even less bat activity than in 2022. There were only two signals recorded on the static monitor (Songmeter Mini Bat) and one signal recorded by the hand-held bat detector.

Two signals recorded on the static monitor (Songmeter Mini Bat) in 2021

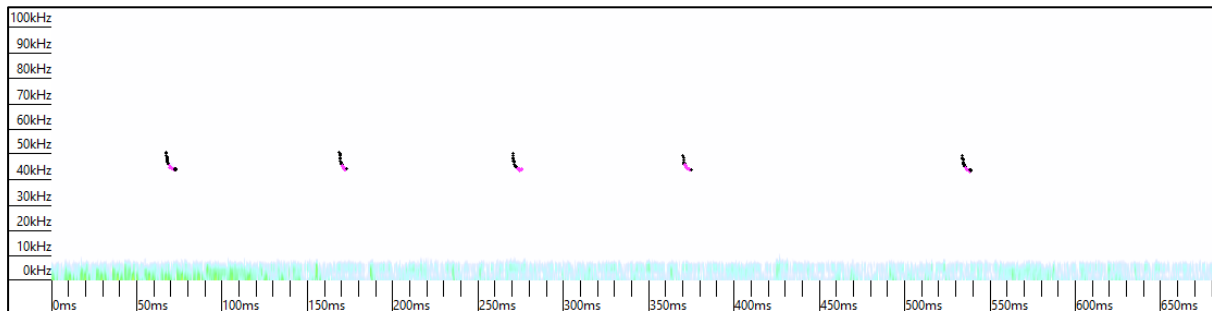
	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUAL ID
1		BK2_20210922_200113.wav	BK2_20210922_200113_000.wav		PIPPYG	8	8	1.000000	PIPPYG
2		BK2_20210923_022637.wav	BK2_20210923_022637_000.wav		PIPPIP	31	31	1.000000	PIPPIP



Soprano pipistrelle at 20.01 hours in 2021 on the static Songmeter Mini Bat monitor.



Common pipistrelle at 02.26 hours in 2021 on the static Songmeter Mini Bat monitor.



Common pipistrelle 20.17 hours in 2021 on an Echometer 3 hand held bat detector 2021

One signal from an Echometer 3 hand held bat detector in the entire night of 22nd to 23rd September 2021

DATE	TIME	AUTO ID	PULSES	MATCHING	MANUAL ID
22/09/2021	20:17:20	PIPPIP	6	6	PIPPIP

Conclusion

This is not an important site for bats. The significance of the site is its proximity to the River Tolka. The absence of vegetation and the high light levels make this an unsuitable site for bats.

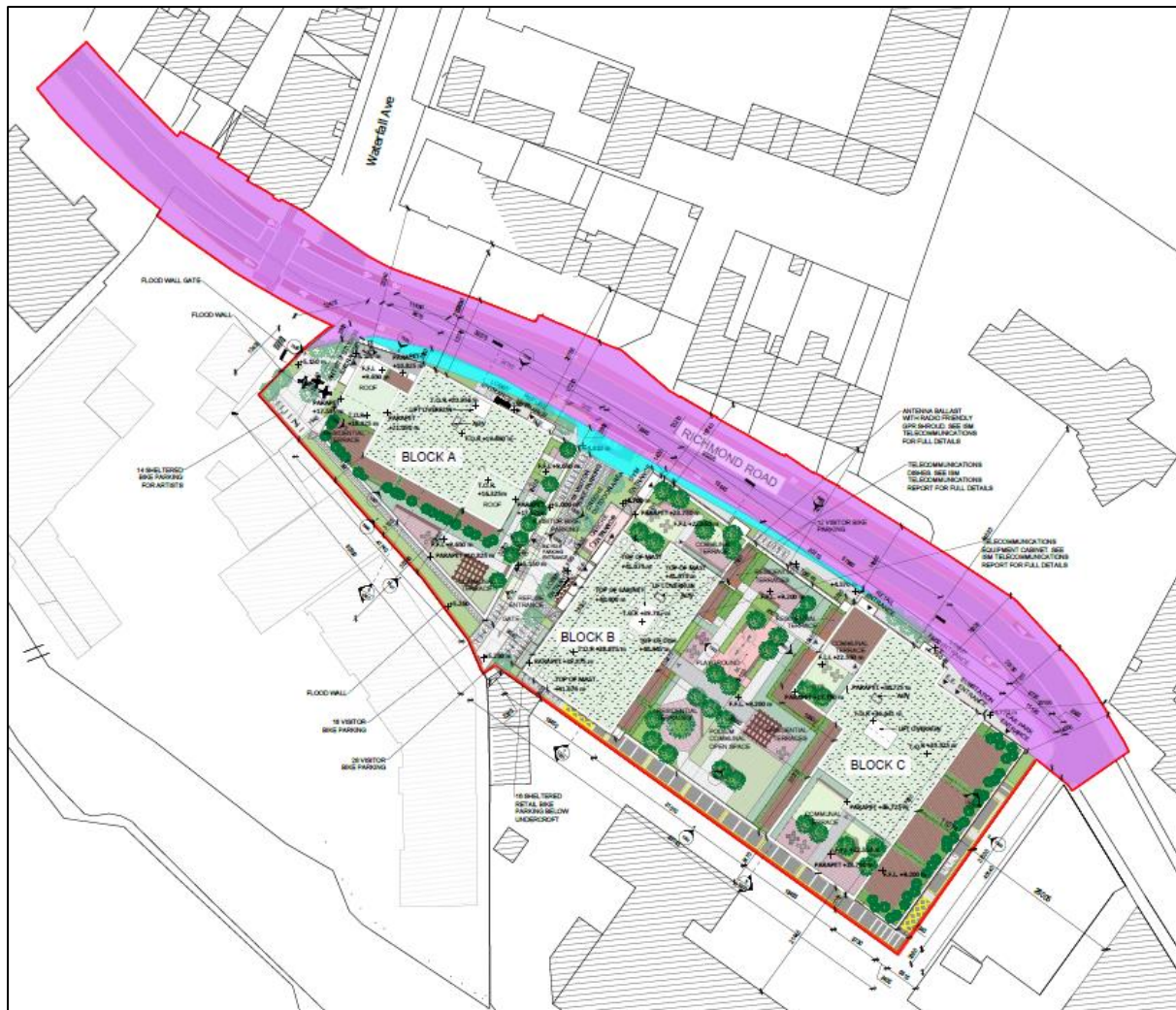
Proposed Development

Malkey Limited intend to apply for permission for development (Large-scale Residential Development (LRD)) at this c. 0.55 hectare site at the former Leydens Wholesalers & Distributors, No. 158A Richmond Road, Dublin 3, D03 YK12. The site is bounded to the north-east by Richmond Road, to the west/south-west by No. 146A and Nos. 148-148A Richmond Road (pending application ABP Reg. Ref. TA29N.312352), to the south/south-west by a residential and commercial development (Distillery Lofts) and to the east/south-east by the Former Distillery Warehouse (derelict brick and stone building). Improvement works to Richmond Road are also proposed including carriageway widening up to c. 6 metres in width, the addition of a c. 1.5 metre wide one-way cycle track/lane in both directions, the widening of the northern footpath on Richmond Road to a minimum of c. 1.8 metres and the widening of the southern footpath along the site frontage which varies from c. 2.2 metres to c. 7.87 metres, in addition to a new signal controlled pedestrian crossing facility, all on an area of c. 0.28 hectares. The development site area and road works area will provide a total application site area of c. 0.83 hectares.

The proposed development will principally consist of: a Large-scale Residential Development (LRD) comprising the demolition of existing industrial structures on site (c. 3,359 sq m) and the construction of a mixed-use development including artist studios (c. 749 sq m), a creche (c. 156 sq m), a retail unit (c. 335 sq m), and a gym (c. 262 sq m), and 133 No. residential units (65 No. one bed apartments and 68 No. two bed apartments). The development will be provided in 3 No. blocks ranging in height from part 1 No. to part 10 No. storeys as follows: Block A will be part 1 No. storey to part 4 No. storeys in height, Block B will be part 1 No. storeys to part 10 No. storeys in height (including podium) and Block C will be part 1 No. storeys to part 9 No. storeys in height (including podium). The proposed development has a gross floor area of c. 14,590 sq m and a gross floor space of c. 13,715 sq m.

The development also proposes the construction of: a new c. 204 No. metre long flood wall along the western, southern and south-eastern boundaries of the proposed development with a top of wall level of c. 6.4 metres AOD to c. 7.15 metres AOD (typically c. 1.25 metres to c. 2.3 metres in height) if required; and new telecommunications infrastructure at roof level of Block B including shrouds, antennas and microwave link dishes (18 No. antennas enclosed in 9 No. shrouds and 6 No. transmission dishes, together with all associated equipment) if required. A flood wall and telecommunications infrastructure are also proposed in the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352) under the control of the Applicant. If that SHD application is granted and first implemented, no flood wall or telecommunications infrastructure will be required under this application for LRD permission (with soft landscaping provided instead of the flood wall). If the SHD application is refused permission or not first implemented, the proposed flood wall and telecommunications infrastructure in the LRD application will be constructed.

The proposed development also provides ancillary residential amenities and facilities; 25 No. car parking spaces including 13 No. electric vehicle parking spaces, 2 No. mobility impaired spaces and 3 No. car share spaces; 2 No. loading bays; bicycle parking spaces; motorcycle parking spaces; electric scooter storage; balconies and terraces facing all directions; public and communal open space; hard and soft landscaping; roof gardens; green roofs; boundary treatments; lighting; ESB substation; switchroom; meter room; comms rooms; generator; stores; plant; lift overruns; and all associated works above and below ground.



Proposed Development at Leyden's site (Drawing: 22001-RKD-ZZ-00-DR-A-1002B)

Potential Impacts

Increased light levels on the River Tolka

Residential and community use development requires lighting for access and safety and for convenience and display and this development would see the introduction of street lighting, house lighting and garden lighting. At present, lighting at the Site is very high but there is no lighting along the river from the existing buildings. The Proposed Development is situated ca.50m away from the River Tolka and is separated from same by existing buildings on adjacent lands. As such, there is limited potential for proposed lighting to increase the lighting of the river. Any lighting of the river corridor could represent a long-term to permanent moderate negative impact.

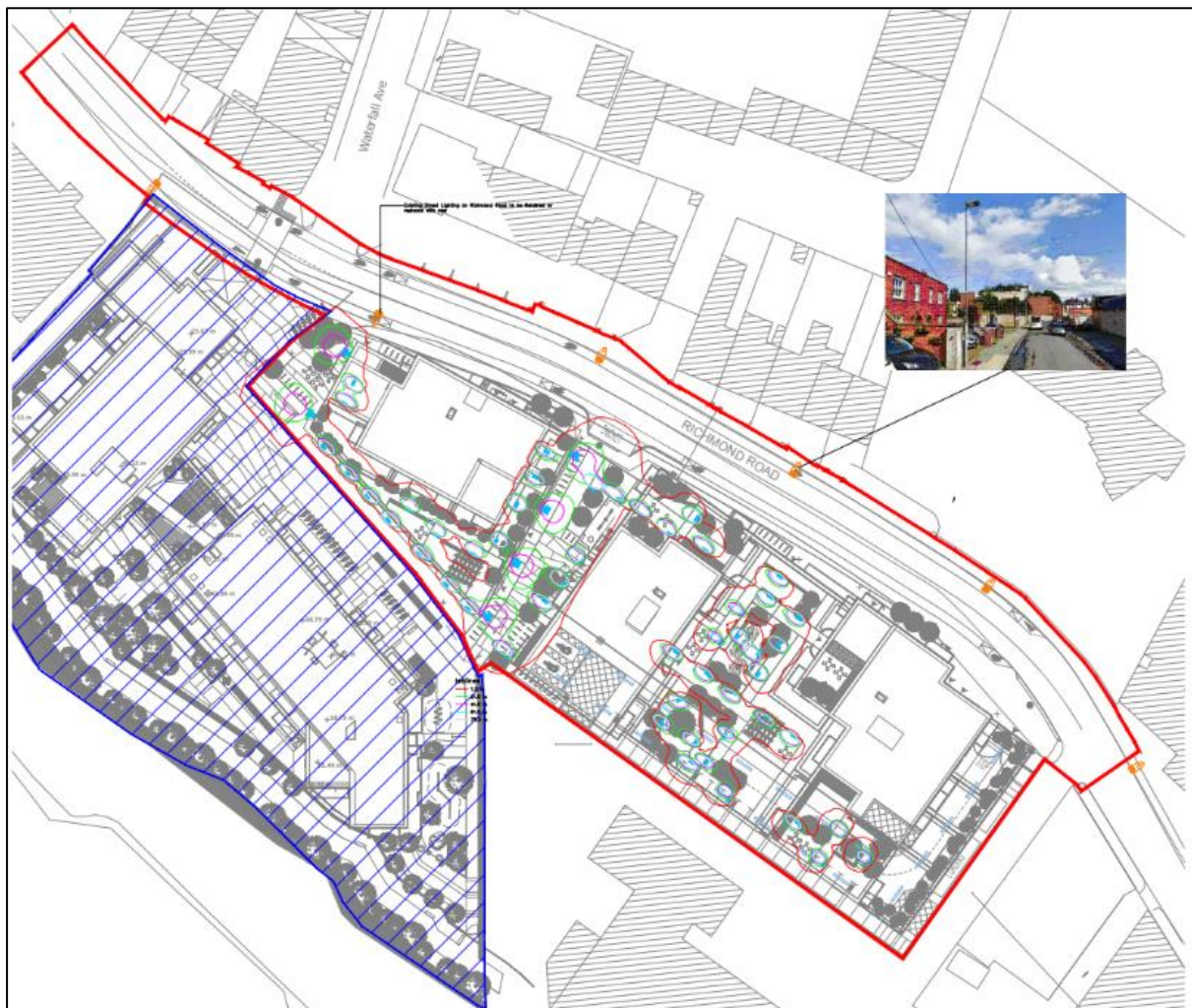
While there will be a removal of 2 sycamore trees, these offer no bat roost potential and roost loss is not a consideration.

Mitigation Measures

Lighting

Lighting shall be controlled to avoid light pollution of green areas and shall be targeted to areas of human activity and for priority security areas. Motion-activated sensor lighting is preferable to reduce light pollution.

- Dark corridor for movement of bats along the grounds of the site. Lighting shall be directed downwards away from the treetops and shall not illuminate the River Tolka or vegetation along its banks.
- All luminaires shall lack UV elements when manufactured and shall be LED
- A warm white spectrum (ideally <2700 Kelvin) to reduce blue light component
- Luminaires shall feature peak wavelengths higher than 550 nm
- Tree crowns shall remain unilluminated where practicable.
- Planting shall provide areas of darkness suitable for bats to feed and commute.



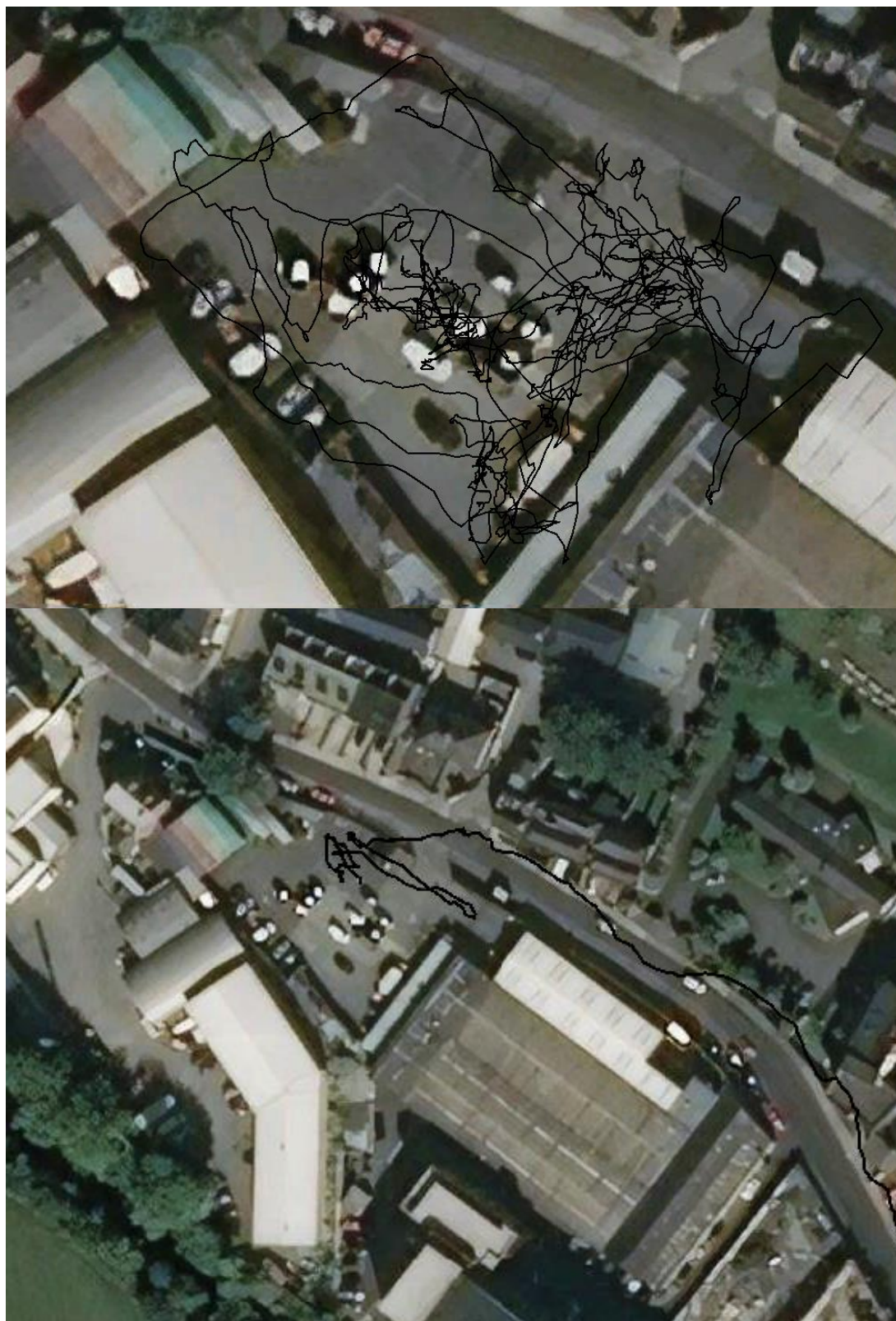
Proposed Lighting of the site (Drawing: RRL-X-ZZZ-DR-AXE-EE-60101)

Enhancement Measures

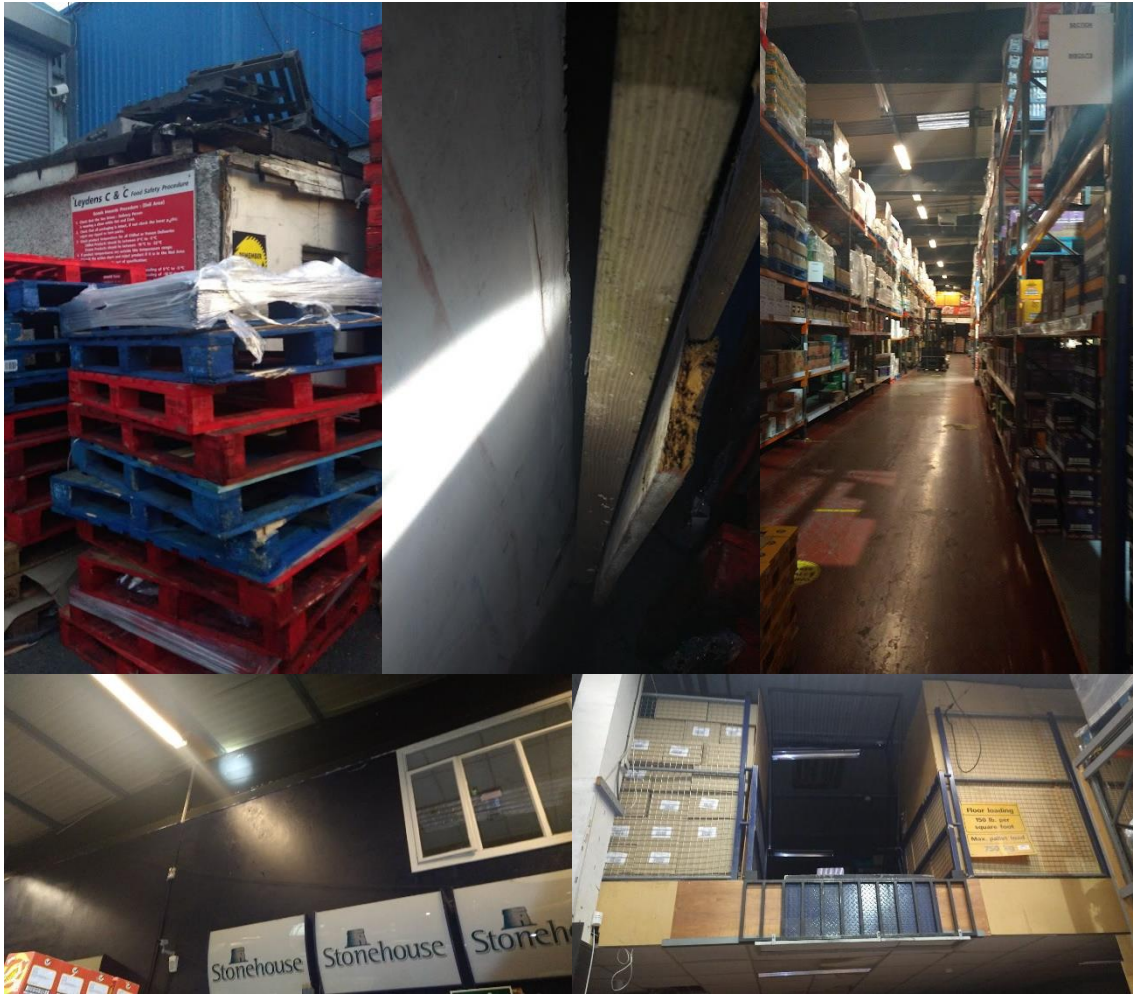
4 x 2FR Schwegler bat boxes shall be incorporated into the new buildings to provide bat roost options. These will be installed towards the River Tolka in 2 x 2 pairs.

Appendices

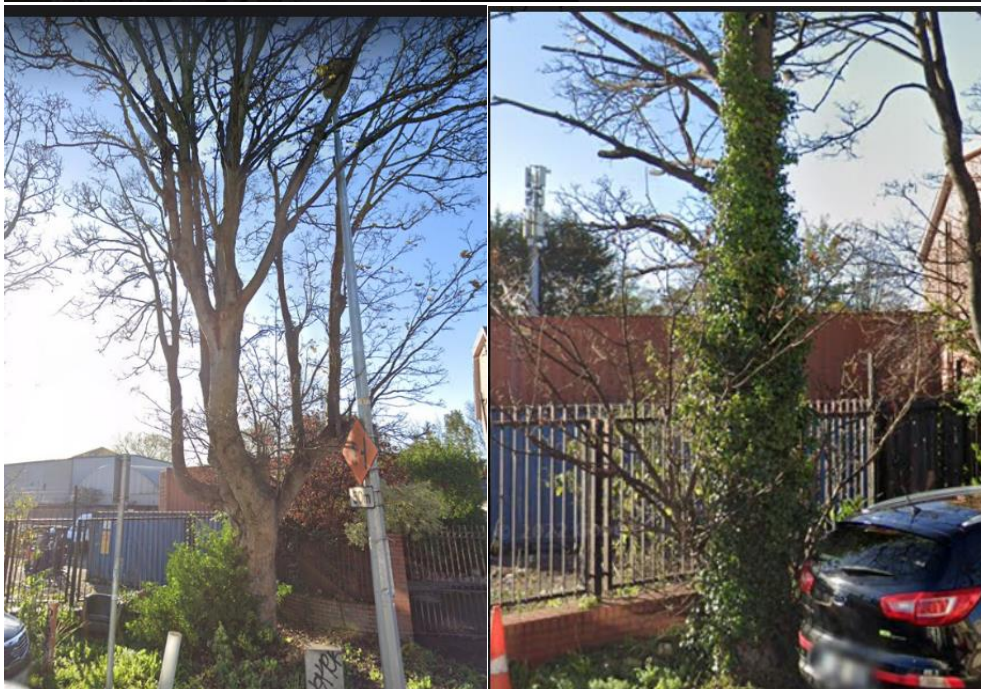
Survey Transects and Site Photos



Transects (black lines) at sunset (top) and prior to sunrise (bottom) in September 2021



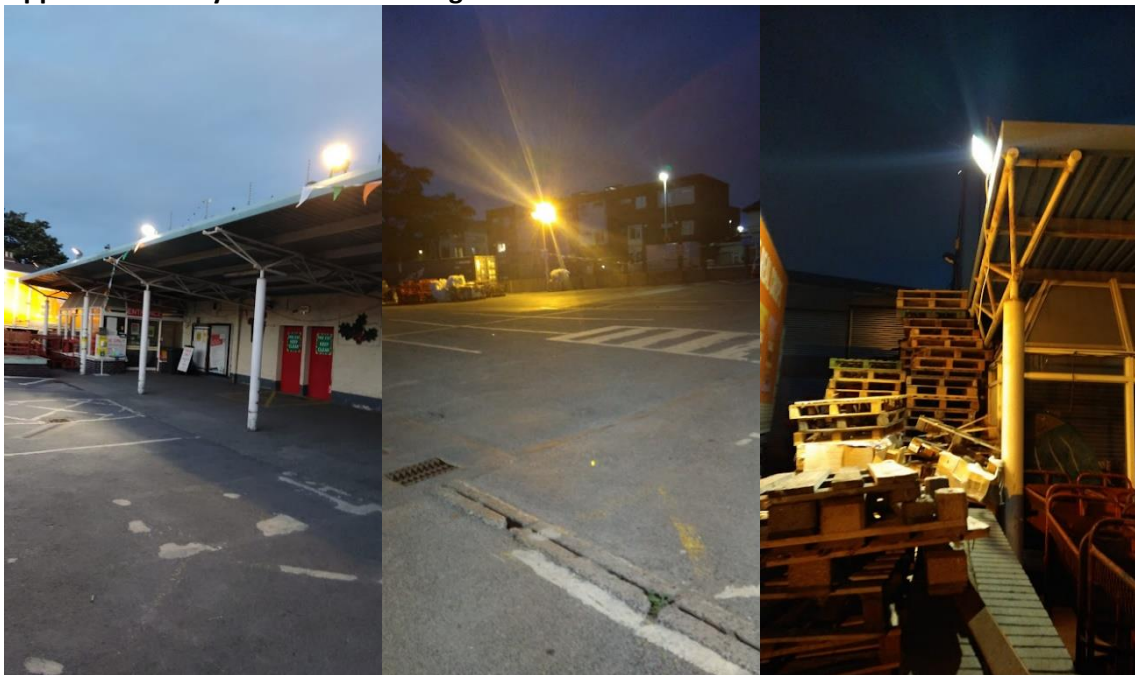
Small shed at the side of the building and images from within the warehouse buildings



Two sycamores that will be removed for this proposal that offer no bat roost potential



Upper floor of Leyden's main building



Lighting around the existing buildings

APPENDIX IV– WINTER WATERBIRD SURVEY DATA (2021/22)

Site visit	Count	Date	Observer	Site Name	Start time	End time	Species	No.	Activity Code	Flight direction	Duration over site	Approx height	Wind	Cloud	Temp	Precip	Vis	Sunrise	Sunset	High tide 1	Low tide 1	Notes	
1	1	24/11/2021	BMcC	Richmond Rd	08:05	09:05	H.	1	FL	N	5s	25m		3	4	6	1	4	08:06	16:16	14:26	20:18	
1	2	24/11/2021	BMcC	Richmond Rd	09:05	09:25	CU	8	FL	W	10s	100m		3	4	7	1	4	08:06	16:16	14:26	20:18	
1	2	24/11/2021	BMcC	Richmond Rd	09:05	09:25	PB	16	FL	NW	12s	120m		3	4	7	1	4	08:06	16:16	14:26	20:18	RI flew NE over site @ 09:25
1	2	24/11/2021	BMcC	Richmond Rd	09:25	10:25	CU	2	FL	NW	10s	100m		3	4	7	3	4	08:06	16:16	14:26	20:18	
1	3	24/11/2021	BMcC	Richmond Rd	10:25	11:30	PB	11	FL	NW	15s	120m		3	4	7	1	4	08:06	16:16	14:26	20:18	
1	3	24/11/2021	BMcC	Richmond Rd	10:25	11:30	CU	5	FL	NW	11s	100m		3	4	7	1	4	08:06	16:16	14:26	20:18	
1	3	24/11/2021	BMcC	Richmond Rd	10:25	11:30	ET	1	FL	W	4s	30m		3	4	7	1	4	08:06	16:16	14:26	20:18	
1	4	24/11/2021	BMcC	Richmond Rd	11:30	12:30								3	4	7	4	3	08:06	16:16	14:26	20:18	
1	5	24/11/2021	BMcC	Richmond Rd	12:30	13:15								3	4	7	2	4	08:06	16:16	14:26	20:18	
1	6	24/11/2021	BMcC	Richmond Rd	13:15	14:05								3	4	7	2	4	08:06	16:16	14:26	20:18	
2	1	10/12/2021	BMcC	Richmond Rd	10:10	11:10								4	1	4	1	4	07:58	16:06	16:22	09:28	
2	2	10/12/2021	BMcC	Richmond Rd	11:10	12:10	CU	2	FL	E	10s	100m		4	1	4	1	4	07:58	16:06	16:22	09:28	
2	2	10/12/2021	BMcC	Richmond Rd	11:10	12:10	MA	4	FL	S	22s	25m		4	1	4	1	4	07:58	16:06	16:22	09:28	
2	2	10/12/2021	BMcC	Richmond Rd	11:10	12:10	PB	83	FL	E	14s	150m		4	1	4	1	4	07:58	16:06	16:22	09:28	
2	3	10/12/2021	BMcC	Richmond Rd	12:10	13:10	PB	10	FL	E	12s	150m		5	1	5	1	4	07:58	16:06	16:22	09:28	
2	4	10/12/2021	BMcC	Richmond Rd	13:10	14:10	CU	1	FL	E	10s	75m		5	1	6	1	4	07:58	16:06	16:22	09:28	
2	5	10/12/2021	BMcC	Richmond Rd	14:10	15:10								5	1	6	1	4	07:58	16:06	16:22	09:28	
2	6	10/12/2021	BMcC	Richmond Rd	15:10	16:10	PB	14	FL	E	11s	130m		5	1	6	1	4	07:58	16:06	16:22	09:28	
3	1	07/01/2022	BMcC	Richmond Rd	10:30	11:30	PB	16	FL	NW	15s	150m		4	4	3	3	2	08:37	16:24	15:00	20:50	
3	2	07/01/2022	BMcC	Richmond Rd	11:30	12:30								4	4	3	4	2	08:37	16:24	15:00	20:50	
3	3	07/01/2022	BMcC	Richmond Rd	12:30	13:30								4	4	2	4	2	08:37	16:24	15:00	20:50	
3	4	07/01/2022	BMcC	Richmond Rd	13:30	14:30								4	4	2	2	4	08:37	16:24	15:00	20:50	
3	5	07/01/2022	BMcC	Richmond Rd	14:30	15:30	CU	2	FL	SW	7s	75-100m		4	4	2	1	4	08:37	16:24	15:00	20:50	
3	6	07/01/2022	BMcC	Richmond Rd	15:30	16:30	MA	1	FL	W	5s	50m		4	2	2	1	4	08:37	16:24	15:00	20:50	
4	1	21/01/2022	BMcC	Richmond Rd	08:30	09:30	PB	32	FL	NW	15s	70-100m		3	4	6	1	4	08:24	16:47	13:42	19:31	
4	2	21/01/2022	BMcC	Richmond Rd	09:30	10:30								3	4	7	1	4	08:24	16:47	13:42	19:31	
4	3	21/01/2022	BMcC	Richmond Rd	10:30	11:30								3	4	7	1	4	08:24	16:47	13:42	19:31	
4	4	21/01/2022	BMcC	Richmond Rd	11:30	12:30	PB	1	FL	SE	12s	70-100m		3	4	7	1	4	08:24	16:47	13:42	19:31	
4	5	21/01/2022	BMcC	Richmond Rd	12:30	13:30								3	4	7	1	4	08:24	16:47	13:42	19:31	
4	6	21/01/2022	BMcC	Richmond Rd	13:30	14:30	MA	2	FL	S	7s	30m		3	4	7	1	4	08:24	16:47	13:42	19:31	
4	6	21/01/2022	BMcC	Richmond Rd	13:30	14:30	H.	1	FL	SE	10s	50-75m		3	4	7	1	4	08:24	16:47	13:42	19:31	
5	1	04/02/2022	BMcC	Richmond Rd	08:00	09:00	H.	1	FL	SE	12s	50m		4	4	3	1	4	08:02	17:13	13:49	19:36	
5	1	04/02/2022	BMcC	Richmond Rd	08:00	09:00	PB	12	FL	NW	10s	150m		4	4	3	1	4	08:02	17:13	13:49	19:36	
5	2	04/02/2022	BMcC	Richmond Rd	09:00	10:00	MA	2	FL	W	6s	30m		4	3	4	2	4	08:02	17:13	13:49	19:36	
5	3	04/02/2022	BMcC	Richmond Rd	10:00	11:00	PB	1	FL	SE	12s	150m		5	1	4	1	4	08:02	17:13	13:49	19:36	
5	4	04/02/2022	BMcC	Richmond Rd	11:00	12:00	MA	3	FL	W	5s	20m		5	1	5	1	4	08:02	17:13	13:49	19:36	
5	5	04/02/2022	BMcC	Richmond Rd	12:00	13:00								5	1	6	1	4	08:02	17:13	13:49	19:36	
5	6	04/02/2022	BMcC	Richmond Rd	13:00	15:00								5	1	6	1	4	08:02	17:13	13:49	19:36	
6	1	18/02/2022	BMcC	Richmond Rd	11:40	12:40	PB	18	FL	E	15s	150m		11	4	3	2	4	07:34	17:41	12:41	18:30	
6	2	18/02/2022	BMcC	Richmond Rd	12:40	13:40								9	3	4	2	4	07:34	17:41	12:41	18:30	
6	3	18/02/2022	BMcC	Richmond Rd	13:40	14:40	H.	1	FL	W	12s	20m		8	1	4	1	4	07:34	17:41	12:41	18:30	
6	4	18/02/2022	BMcC	Richmond Rd	14:40	15:40								8	4	6	4	4	07:34	17:41	12:41	18:30	
6	5	18/02/2022	BMcC	Richmond Rd	15:40	16:40	MA	2	FL	W	10s	10m		5	2	6	2	4	07:34	17:41	12:41	18:30	
6	6	18/02/2022	BMcC	Richmond Rd	16:40	17:40	PB	44	FL	E	10s	150-200m		6	1	5	1	4	07:34	17:41	12:41	18:30	
7	1	11/03/2022	BMcC	Richmond Rd	12:25	13:25	MA	2	FL	W	10s	25m		4	4	9	4	3	06:46	18:21	17:02	10:22	
7	2	11/03/2022	BMcC	Richmond Rd	13:25	14:25	MA	4	FL	W	6s	10m		3	4	11	4	3	06:46	18:21	17:02	10:22	
7	2	11/03/2022	BMcC	Richmond Rd	13:25	14:25	PB	5	FL	E	15s	100m		3	4	11	4	3	06:46	18:21	17:02	10:22	
7	3	11/03/2022	BMcC	Richmond Rd	14:25	15:25								3	4	11	1	4	06:46	18:21	17:02	10:22	
7	4	11/03/2022	BMcC	Richmond Rd	15:25	16:25	PB	125	FL	E	12s	150m		4	4	12	1	4	06:46	18:21	17:02	10:22	
7	5	11/03/2022	BMcC	Richmond Rd	16:25	17:25								4	4	12	1	4	06:46	18:21	17:02	10:22	
7	6	11/03/2022	BMcC	Richmond Rd	17:25	18:25								4	4	11	1	4	06:46	18:21	17:02	10:22	
8	1	05/04/2022	BMcC	Richmond Rd	07:05	08:05								5	4	9	1	4	06:46	20:07	15:03	08:28	
8	2	05/04/2022	BMcC	Richmond Rd	08:05	09:05	MA	3	FL	E	10s	20m		5	4	9	1	4	06:46	20:07	15:03	08:28	
8	3	05/04/2022	BMcC	Richmond Rd	09:05	10:05								6	4	10	1	4	06:46	20:07	15:03	08:28	
8	4	05/04/2022	BMcC	Richmond Rd	10:05	11:05								5	4	11	1	4	06:46	20:07	15:03	08:28	
8	5	05/04/2022	BMcC	Richmond Rd	11:05	12:05	MA	4	FL	NE	12s	15m		5	4	11	1	4	06:46	20:07	15:03	08:28	
8	6	05/04/2022	BMcC	Richmond Rd	12:05	13:05								6	4	12	1	4	06:46	20:07	15:03	08:28	

NOTE: HG, BH & CM recorded on all counts on each of the 8 site visits. Mostly in flight over the Site but occasionally foraging on the ground and roof of the Site.