Ecological Impact Assessment (EcIA) Report

Blackglen Road Housing Scheme

Dun Laoghaire Rathdown County Council

Blackglen Road, Dún Laoghaire Rathdown, Co. Dublin

Prepared by:

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Basis of Report

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Executive Summary

The Site comprises dry meadows and grassy verges, recolonising bare ground, scrub, mixed broadleaved woodland, treelines, and built land. It is assessed to be of value for a variety of fauna including common frog, smooth newt, a range of mostly common and widespread passerine birds, foraging and commuting bats, badgers (including a badger sett), as well as other mammals and common invertebrates. Additionally, Fitzsimon's Woods pNHA is located adjacent north of the Site boundary.

The Site has undergone breeding bird surveys, newt surveys, static bat data collection, and badger monitoring and walkover surveys. The results of these surveys are detailed in Section 4.0. Potential impacts and recommended mitigation and compensation measures are detailed in Section 5.0.

Unmitigated negative impacts to local fauna are predicted and appropriate mitigation has been proposed to minimise these potential impacts.

The proposed development plan has been amended and a permanent fence erected to prevent un-necessary impacts on a known badger sett. The fence will also provide some protection and reduce the impact on the newt ponds and newt population found to the east of the Site. The loss of the grassland will impact the common bird species, but additional planting and landscaping will provide bird species with replacement foraging habitats.

Some foraging habitats for bats will be lost and the street lighting will have an impact on foraging bats, however, the extent of the proposed development is relatively small and there will be sufficient other foraging habitats in the surrounding area.

It is assessed that the unmitigated works may impact valuable habitats and the fauna that use them, however, the recommended mitigation measures will minimise the predicted impacts to the local ecology. Provided that the proposed works are undertaken in accordance with the proposed design and best practice that is described within this report, significant effects on ecology will be limited.

A CEMP has been prepared, and this should be adhered to throughout the construction phase of the proposed development. It is recommended that soft landscaping proposals are provided, detailing planting schedules, species lists and necessary management with the aim of benefitting biodiversity, such as foraging bats and birds, as well as invertebrates.

Overall, the recommended mitigation and compensation measures detailed in this report will minimise the potential ecological impacts to the Site as a result of the proposed development.

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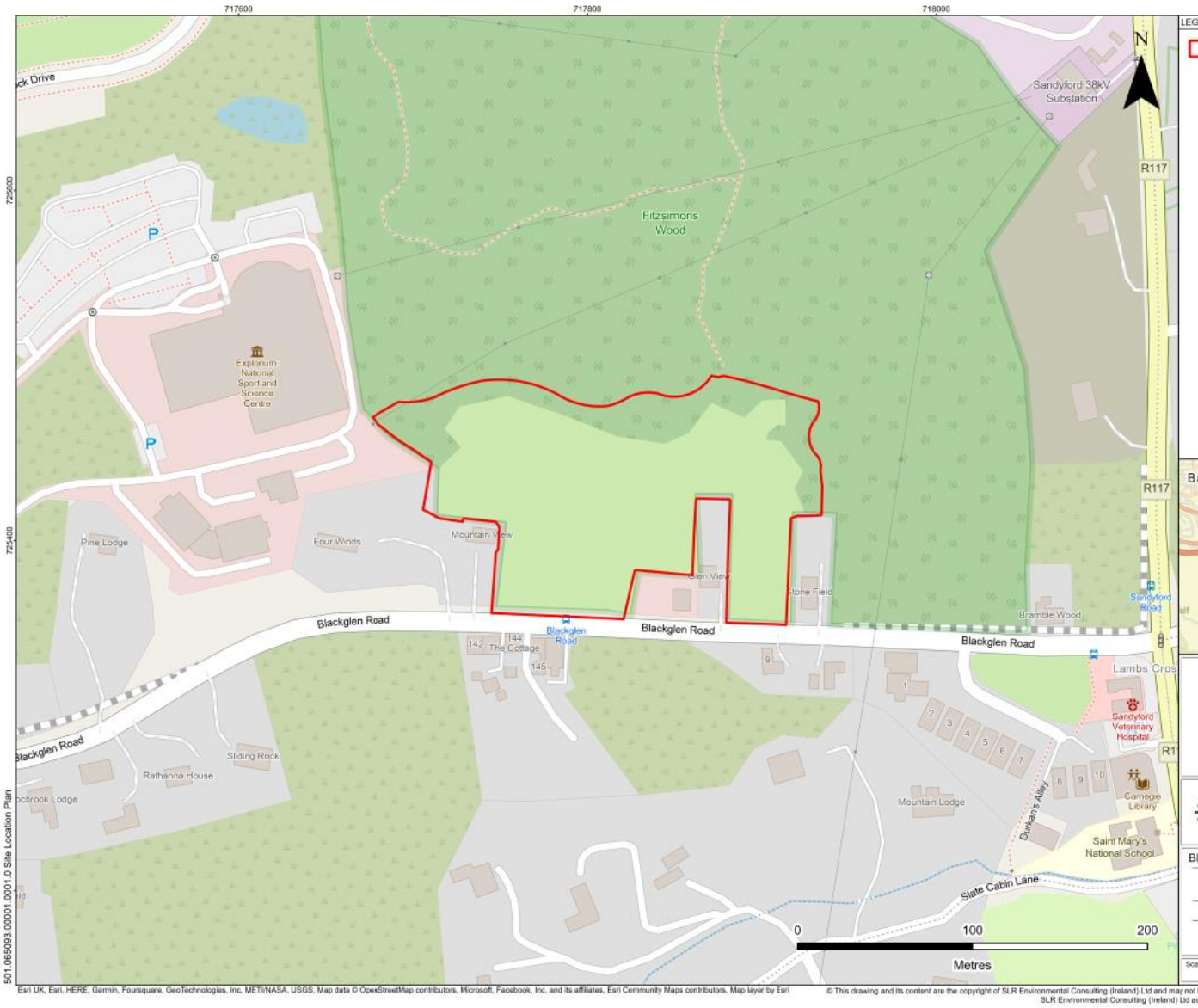

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Acronyms and Abbreviations

AA	Appropriate Assessment
BoCCI	Birds of Conservation Concern Ireland
BTO	British Trust for Ornithology
CBC	Common Bird Census
CEMP	Construction Environment Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CMS	Central Management System
DLR	Dun Laoghaire Rathdown
DLRCC	Dun Laoghaire Rathdown County Council
EcIA	Ecological Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ha	Hectares
ITM	Irish Transverse Mercator
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
NBDC	National Biodiversity Data Centre
NHA	Natural Heritage Area
NPWS	National Parks and Wildlife Service
pNHA	potential Natural Heritage Area
PEA	Preliminary Ecological Appraisal
PRA	Preliminary Roost Assessment
PRF	Potential Roosting Features
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area

1.0 Introduction

SLR Consulting Ireland (SLR) was commissioned by Dun Laoghaire Rathdown County Council (DLRCC), to prepare an Ecological Impact Assessment (EcIA) report for a proposed housing scheme to be developed on the Blackglen Road in Dublin.

1.1 Site Description

The proposed development site (the Site) is located on the Blackglen Road in Dublin City and is approximately centred at Irish Transverse Mercator (ITM) Grid Reference: 717920, 725466. The Site measures c. approximately 2.8 hectares (ha) with access gained from the R113 Blackglen Road which runs along the southern boundary of the Site. The Site is surrounded to the north by Fitzsimon's Woods potential Natural Heritage Area (pNHA), with the National Sports and Science Centre on the western boundary and an area of DLRCC owned land known as Gorse Hill on the eastern boundary. There are a number of stand-alone dwellings along the southern boundary of the Site, all with access to the R113 road.

The site itself is a greenfield site comprising mostly grassland, with dense scrub located along the boundaries, and direct links to offsite woodland to the north. The Site is surrounded to the south and east by urban developments of the new and existing housing estates within Simon's Ridge, Aiken Village and Leopardstown Heights.

1.2 Project Description

The Proposed Development comprises 129 dwellings which will consist of Social, Cost Rental and Affordable units dwellings.

- The mix comprises:
- 24 Affordable houses,
- 1 High support unit (Social unit),
- 72 Social dwellings, and
- 32 Cost Rental dwellings comprising of houses and apartments.

A full project description is provided in Section 2, and a detailed layout of the proposed development is shown in Appendix A.

1.3 Previous Surveys and Reports

Table 1-1 details the previous reports provided for the Site.

Table 1-1: Previous Surveys and Reports for the Site

Survey / Report Type	Date	SLR Reference
Preliminary Ecological Appraisal (PEA) Report	August 2022	501.00591.00001
Preliminary Badger Report	June 2023	501.65093.00001
Newt Survey Report	October 2024	501.065378.00001

1.4 Purpose of the Report

The purpose of this report is to provide supporting information to assist the local authority, in this case DLRCC, to carry out an assessment of the effects of the proposed development works on biodiversity.

The aim of this report is to:

- Describe the baseline data collection and assessment methodologies used,
- Summarise the baseline ecological conditions,
- Identify and describe all potentially significant effects on biodiversity,
- Set out the mitigation and/or compensation measures if required,
- Provide an assessment of the significance of any residual effects in relation to the effects on biodiversity,
- To identify potential enhancement measures and how these will/could be delivered, and
- Set out the requirements for post-construction monitoring (if required).

1.5 Evidence of Technical Competence and Experience

SLR Project Ecologist Jake Matthews prepared this report and SLR Associate Ecologist Michael Bailey carried out the technical review.

Jake Matthews is a Project Ecologist with SLR since October 2022, with a total of five years' ecological consulting experience. Jake holds an MSc in Ecology and Environment Management from Liverpool Hope University and a BSc in Wildlife Conservation and Zoo Biology from University of Salford. Jake has a broad ecological experienced and has provided a range of ecological surveys and reports for residential and commercial developments within the UK and Ireland.

Michael Bailey holds a BSc. in Biology and Ecology from the University of Ulster and an MSc. in Quantitative Conservation Biology from the University of the Witwatersrand in Johannesburg. He has extensive experience in ecological studies and assessments across a range of sectors in UK and Ireland and of agricultural, mining, and renewable energy projects across Africa. He is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM).

1.6 Relevant Legislation

1.6.1 Legislation

The following legislation is relevant to this report:

- The EIA Directive (2014/52/EU).
- The Habitats Directive (92/43/EEC).
- The Birds Directive (2009/147/EC).
- European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015;
- The Wildlife Acts 1976.
- Wildlife (Amendment) Act, 2000, 2010, 2012;
- The Flora (Protection) Order 2022.

The details of these legislations are summarised in Appendix B of this Chapter.

1.6.2 Regional and Local Planning Policy

The relevant local planning policies have been extracted from the Dun Laoghaire Rathdown (DLR) County Development Plan 2022-2028[1], and policies on biodiversity were derived from the Draft Biodiversity Action Plan for Dun Laoghaire 2021-2025[2] and have been placed in Appendix B of this report.

[1] County Development Plan 2022-2028 | Dún Laoghaire-Rathdown County Council (dlrcoco.ie)

[2] Biodiversity Plan | Dún Laoghaire-Rathdown County Council (dlrcoco.ie)

2.0 Description of the Proposed Development

2.1 General

The Proposed Development is located at Blackglen Road, Sandyford, County Dublin. The existing site is a greenfield site comprising mostly grassland, with dense scrub located along the boundaries. The Site measures approximately 2.8ha. The Site is bounded by Blackglen Road to the south, with dense scrub located along the northern boundaries with direct links to an offsite woodland to the north. The Site is surrounded to the south and east by urban developments of the new and existing housing estates within Simon's Ridge, Aiken Village and Leopardstown Heights.

The Proposed Development comprises 129 dwellings which will consist of Social, Cost Rental and Affordable units dwellings.

The mix comprises:

- 24 Affordable houses,
- 1 High support unit (Social unit),
- 72 Social dwellings, and
- 32 Cost Rental dwellings comprising of houses and apartments.

The 129 dwellings are distributed across seven blocks, labelled A through G, as follows and as shown in Figure 1 below:

- Block A: 8 no. 1-bed apartments and 16 no. 2-bed apartments
- Block B: 16 no. 1-bed apartments and 16 no. 2-bed apartments,
- Block C: 7 no. 1-bed apartments, 21 no. 11/2-bed apartments and 1 no. high support unit,
- Block D: 4 no. 2-bed houses and 2 no. 4-bed houses,
- Block E: 2 no. 2-bed apartments, 6 no. 2-bed houses and 4 no. 3-bed houses,
- Block F: 3 no. 1-bed apartments, 3 no. 2-bed apartments, 6 no. 2-bed houses and 3 no. 3-bed houses; and,
- Block G: 2 no. 2-bed apartments, 5 no. 2-bed houses and 4 no. 3-bed houses.

The Proposed Development will also include 138 no. car parking spaces and 182 no. bike parking spaces, landscaping, boundary treatments, pedestrian links, public lighting, service connections and all associated site works, and vehicular, cycle and pedestrian access/egress off the regional road R113, Blackglen Road, to the south of the Site.

2.2 Site Drainage

The Proposed Development will include a sustainable urban drainage system (SuDS) with a combination of SuDS mechanisms being utilised and will be in accordance with all current SuDS guidelines. Ground investigations at the Site confirmed the Site is not suitable for infiltration and as such permeable surfacing will be used as an attenuation system. The surface water generated on site will be attenuated via the porous surface and a modular system, both will be connected to the public system via a hydrobrake.

SuDS measures to be utilised on the site include:

- Permeable surfacing – will be used within the parking areas and roadways. This will allow some limited natural infiltration and also attenuation storage. These areas have been suitably sized to stone surface water from the surrounding areas.

- Rain gardens / planting – will allow limited natural infiltration. This has not been taken into account in the surface water calculations but will contribute positively to the overall surface water strategy for the site.
- Green Roofs – a green roof will be utilized on half of the roofs of Blocks A, B, and C.
- Modular attenuation system – will be used to compliment the above measures and ensure the outflow from site is restricted to greenfield run off rates.

To alleviate any possible risk of flood the on-site surface water system is designed for a 1 in 100-year storm (+30%). A 30% increase in runoff due to global warming is included. Site specific MET Eireann Rainfall data has been used in the surface water drainage and attenuation design. There will be a complete separation of the foul and surface water drainage systems within the site, both in respect of installation and use. The proposed surface water drainage has been designed in accordance with BS EN 752, Code of Practice for Drainage Outside Buildings.

The proposed foul drainage system has been designed in accordance with Uisce Éireann's Code of Practice and Standard Details for Wastewater, BS 8301:1985, Code of Practice for Building Drainage and the current Building Regulations and Uisce Éireann's Code of Practice.

The proposed foul drainage system for the development is a gravity feed system falling to an existing foul line on Blackglen road. The proposed main foul sewers are to consist of 150mm diameter uPVC pipe and 225mm diameter uPVC pipes with required fall designed throughout to minimise the risk of blockages and to aid maintenance. According to the Hayes Higgins Partnership , the Proposed Development will not result in a significant increase in foul discharge from the Site on the public system.

A Pre-Connection Enquiry form was submitted to Uisce Éireann on 4th April 2024 nominating the proposed post-development wastewater demand. Uisce Éireann have confirmed the development is feasible without upgrade by Uisce Éireann.

There is an existing 200mm diameter water main on Blackglen Road south of the Site. Given the site layout, two connections from this line will be provided to serve the Site. On-site looped 100mm diameter HDPE watermain to suit the layout will be installed.

In accordance with requirements air valves and scour valves will be provided around the Site as necessary. Hydrants will be provided as directed by the Fire Safety Certificate and Technical Guidance Document B of the Building Regulations 2006. Water saving devices including aerated taps and low water usage appliances will be used in the Proposed Development in accordance with best practice. The water supply system has been designed and will be installed in accordance with Uisce Éireann Code of Practice and Standard Details for Water.

A stage 1 desktop flood risk assessment was undertaken by Hayes Higgins Partnership3 to identify possible sources of flooding, and the risk posed to the development, and separately the risk posed to surrounding areas because of the development. The Site is situated far enough away from the sea not to be subjected to coastal or fluvial flooding. The Site slopes from the north to south and from the west to east. Studies have shown that the Site has not been subjected to flooding during previously reported flooding events. As such, Hayes Higgins Partnership3 state that it is reasonable to assume there is no risk to the Proposed Development resulting from flooding off-site. It is intended that all surface water run off generated by the 1-in-100 year storm will be dealt with via the attenuation tank. An allowance has been made for a 30% increase in runoff due to global warming, as per the "Greater Dublin Strategic Drainage Study" recommendations[3].

2.3 Biodiversity and Landscaping

The proposed landscaping is a significant aspect of this architectural housing development, given the site's location, rich in diverse ecosystems and wooded areas on the foothills of the Dublin Mountains. Associated works will include hard and soft landscaping, including measures to protect a known

[3] "*Civil Services Report for Residential Housing Development at Blackglen Road*" Hayes Higgins Partnership, August 2024.

badger sett located to the north of the development area. The Proposed Development will include dedicated amenity areas, bicycle spaces, construction of new walls along the southern boundary as required, deer fencing along sections of the northern boundary, and all associated ancillary drainage and site works (Figure 1).

The speed limit in the vicinity of the access point is 50km/h. The road width will be reduced to mitigate the risk of speeding and to protect both pedestrians, and wildlife which may travel through the site.

2.4 Construction Timelines

Construction works are anticipated to last for ca. 80 weeks.

3.0 Ecological Assessment Methodology

The methods used to carry out the survey of the Site, to evaluate the ecological value and to prepare the biodiversity chapter is outlined in this section. The assessment methodology for this proposal was developed using the standard professional impact assessment guidance published in 2018 by the Chartered Institute of Ecology and Environmental Management (CIEEM).

3.1 Purpose of the Report

The purpose of this report is to describe the baseline ecological conditions and identify potential impacts likely to occur within the Site and its Zone of Influence (ZoI) as a result of the proposed continue the use of the existing quarry. The scope of the report includes the provision of mitigation, compensation and enhancement measures as required.

3.2 Scope of Assessment

The ZoI for a project is the area over which ecological receptors may be subject to significant effects caused by the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site's boundaries. The ZoI will vary for different ecological features depending on their sensitivity to an environmental change[4].

The ZoI for a project can be identified through review of the nature of the proposed development / works, the presence / absence of surface water receptors, the presence of ecological connectivity to the wider landscape and distance from known ecologically sensitive sites.

The ZoI of the proposed development is considered to be the lands within the proposed development and the surrounding lands including Gorse Hill and Fitzsimon's Wood pNHA.

3.3 Baseline Data Collection

3.3.1 Desk Study

A desk study was carried out to collate the available existing ecological information on the project site. The surrounding area was viewed available satellite and aerial photography and mapping resources.

The National Parks and Wildlife Service[5] and the National Biodiversity Data Centre (NBDC)[6] online resources were accessed for information on sites designated for nature conservation and on protected habitats and species. Data records of two 1km^2 squares (O1725 and O1825) were assessed.

Environmental Protection Agency (EPA) Maps[7] were accessed for Special Areas of Conservation (SAC) and Special Protection Areas (SPA) designated sites within 2 km of the Site, as well as other environmental information, such as surface water features, relevant to the preparation of this report.

The DLRCC website[8] was accessed for information on relevant planning policy, while the planning portal[9] was accessed for information on other proposed or permitted projects within the project site and immediate surrounding area.

Birds of Conservation Concern in Ireland (BoCCI) 2020-2026[10], published by BirdWatch Ireland and the Royal Society for the Protection of Birds (RSPB) Northern Ireland, is a list of priority bird species

[4] CIEEM (2019)

[5] https://www.npws.ie/ (last accessed August 2024)

[6] https://maps.biodiversityireland.ie/ (last accessed August 2024)

[7] http://gis.epa.ie/ (last accessed August 2024)

[8] https://www.dlrcoco.ie/ (last accessed August 2024)

[9] https://www.dlrcoco.ie/planning-applications/planning-applications-online-search (Last accessed August 2024)

[10] Gilbert, Stanbury and Lewis (2021). Birds of Conservation Concern Ireland 2020 – 2026. Irish Birds 9: 523 - 544

for conservation action on the island of Ireland. The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are species of medium conservation concern and Green List are not considered threatened. The BirdWatch Ireland website[11] was accessed for information on birds of conservation concern.

All bird species are protected under the Wildlife Acts 1976 – 2012 but for the purposes of this report only records of species that are Red or Amber-listed on BoCCI or listed on Annex 1 of the Birds Directive are included from records held by the NBDC.

The conservation status of mammals within Ireland and Europe is evaluated using one or more of the following documents: Wildlife Acts (1976 - 2018), the Red List of Terrestrial Mammals (Marnell *et al*., 2019) and the EU Habitats Directive 92/43/EEC.

The resources examined included:

- Recent satellite maps and Environmental Sensitivity Mapper to identify previously mapped Annex 1 habitats and features of potential value to bats at the Site[12];
- The bat landscapes suitability index for the Site[13],
- Recent records of other notable fauna[14]
- Maps of nationally and internationally designated sites within 2 km from the Site[15];

3.3.2 Field Survey(s)

The Site and the surrounding habitats of Fitzsimon's Woods and Gorse Hill underwent several field surveys between May 2023 and October 2024, covering multiple survey types. These are detailed below. In summary, surveys including the following:

- Habitat survey and mapping (see Figure 2);
- Bat Preliminary Roost Assessment (PRA);
- Assessment of the site's suitability for other notable fauna;
- Newt presence / absence survey;
- Badger survey;
- Badger sett monitoring;
- Breeding bird surveys; and
- Invasive species were noted where present[16].

[11] https://www.birdwatchireland.ie/ (Last accessed August 2023).

[12] Obtained via satellite images available on https://earth.google.com/web/ and Environmental Sensitivity Mapper (ESM) https://airomaps.geohive.ie/ESM/ (last accessed June 2023). This was used to conduct an Initial Site Risk Assessment, assigning the habitats within the Site to a risk category (low, moderate or high) using criteria provided within Bat Conservation Trust Guidelines (Last accessed August 2024).

[13] Obtained via Biodiversity Ireland https://maps.biodiversityireland.ie/Map (last accessed June 2024). The index ranks landscapes from least (0) to most favourable (100) using records held by Bat Conservation Ireland and landscape features to train a predictive model that identifies geographical areas suitable for individual bat species.

[14] A search of the records contained in 10 km grid squares N20 and N21 by the NBDC https://maps.biodiversityireland.ie/Map (Last accessed July 2024).

[15] Obtained via EPA map viewer https://gis.epa.ie/EPAMaps/ (Last accessed July 2024).

[16] For the purposes of this report "invasive species" are those which are subject to Regulation 49 of the Habitats Directive as listed in Part 1 and Part 2 of the Third Schedule within the Directive.

3.3.2.1 Newt Surveys

All ponds identified within 250 m (and not separated by barriers to amphibian movement and distribution) of the ZoI underwent newt surveys[17] were conducted following the current guidance[18] to establish presence / likely absence. As per the guidance, a combination of different survey techniques was used including:

- Torchlight inspections;
- Egg searching; and
- Dip-netting.

The ponds underwent two survey visits. A total of four visits was planned. However, as per the guidance, once newt presence was established, no further surveys were required.

3.3.2.2 Breeding Bird Surveys

The Site underwent a total of four breeding bird surveys between mid-June and early-July. Surveys started approximately half an hour after sunrise and comprised a transect through the Site and the adjacent Fitzsimon's Woods pNHA. A pre-determined transect route was walked and was considered to provide sufficient coverage of field boundaries and other features with potential to offer suitability for breeding birds (see Figure 3).

All birds recorded along the transect route were mapped, and their behaviours were recorded (where applicable). The survey methodology followed guidance set out under the Bird Survey Guidelines[19] and an adapted approach following the Common Bird Census (CBC) methodology[20], using British Trust for Ornithology (BTO) two letter species codes and activity codes[21].

This method is found particularly amongst passerines, where territories are often marked by conspicuous song, display, and periodic disputes with neighbouring individuals.

For the purposes of this survey, raw field maps with survey results were digitised for each survey visits (see Figures 4.1 – 4.4); and subsequently, the individual survey maps were overlayed to provide an indication of the number of potential territories (see Figure 5).

Breeding bird evidence is detailed in Table 3-1.

Table 3-1: Breeding bird evidence[22]

Breeding status categorisation	Evidence
Confirmed	Distraction display or feigning injury
	Used nest or eggshells found (occupied or laid within period of survey
	Recently fledged young or downy young
	Adults entering or leaving nest-site indicating an occupied nest / adults seen incubating

[17] Under NPWN licence ref: C138/2023.

[18] National Roads Authority (2008). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. https://www.tii.ie/technical-services/environment/planning/Ecological-Surveying-Techniques-for-Protected-Flora-and-Fauna-during-the-Planning-of-National-Road-Schemes.pdf (last accessed June 2024).

[19] https://birdsurveyguidelines.org/methods/survey-method/#:~:text=Generally%2C%20surveys%20of%20the%20breeding,species%20will%20have%20tailed%20off. (last accessed June 2024).

[20] https://www.bto.org/sites/default/files/u31/downloads/details/CBC-instructions-g100.pdf (last accessed June 2024).

[21] Gilbert, G., Gibbons, D. W. & Evans, J. (1998). Bird monitoring methods a manual of techniques for key UK species, Sandy Bedfordshire: RSPB.

[22] Taken from BTO guidance: https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence (last accessed July 2024).

Breeding status categorisation	Evidence
	Adult carrying faecal sac or food for young
	Nest containing eggs
	Nest with young seen or heard
Probable breeding	Pair observed in suitable nesting habitat
	Permanent territory (defended over at least two survey visits)
	Courtship and display
	Visiting potential nest site
	Agitated behaviour
	Nest building / hole excavation
Possible breeding	Observed in suitable nesting habitat
	Singing male
Non-breeding	Overflying
	Migrant
	Summering non-breeder
	Observed in unsuitable nesting habitat

3.3.2.3 Bat Activity Surveys

A static bat detector was positioned on the Site, within scrub habitat, at ITM coordinates 717789 725481 on 30/06/2023 and was retrieved on 04/07/2023. This location was chosen due to it having good suitability for bat foraging and commuting and was in close proximity to the proposed development construction area. It was considered through professional judgement that a bat transect survey was not required on the Site[23].

The data was analysed by SLR Project Ecologist Jake Matthews, using Kaleidoscope Pro 5 analysis software[24] to assess what bat species use the Site and the number of bat passes, which may indicate the importance of the habitat and the Site for bats.

3.3.2.4 Badger Surveys

The Site underwent an additional walkover survey on 24.05.2023 to identify further badger setts and badger activity on the Site and within 50 m of the Site boundary.

A trail camera was positioned outside an entrance of sett 1 overnight between 12.06.2023 and 13.06.2023 to determine whether the sett was active or not. The footage was analysed on 13.06.2023 by SLR Project Ecologist Jake Matthews.

The detailed findings of the badger surveys is presented in a separate confidential report which has been submitted to Dun Laoghaire Rathdown County Council.

[23] As per the BCT Guidance (Collins, 2016) for Sites with low bat commuting and foraging potential.

[24] https://www.wildlifeacoustics.com/products/kaleidoscope-pro

Table 3-2: Surveys information of the Site

Date	Survey type (visit no.)	Start / end time	Surveyor	Weather conditions (start)		
				Measurement	**Start**	**End**
04.05.2023	Newt survey (1)	20:00 – 22:00	Michael Bailey Jake Matthews Hugo Brooks (SLR Graduate Ecologist)	Temperature (°C) Cloud cover (Oktas) Wind speed (Beaufort) Precipitation	12 8/8 4 Heavy rain	11 8/8 oktas 4 Heavy rain
24.05.2023	Newt survey (2)	19:30 – 21:00	Michael Bailey Jake Matthews	Temperature (°C) Cloud cover (Oktas) Wind speed (Beaufort) Precipitation	14 4/8 3 None	13 6/8 3 None
24.05.2023	Badger walkover	17:00 – 19:30	Michael Bailey Jake Matthews	Temperature (°C) Cloud cover (Oktas) Wind speed (Beaufort) Precipitation	14 4/8 3 None	14 4/8 3 None
12.06.2023 & 13.06.2023	Badger sett monitoring (1)	Recorded overnight (refer to date)	Jake Matthews	Temperature (°C) Cloud cover (Oktas) Wind speed (Beaufort) Precipitation	18 6/8 2 None	N/A N/A N/A N/A
13.06.2023	Breeding bird survey (1)	05:30 – 08:30	Jake Matthews	Temperature (°C) Cloud cover (Oktas) Wind speed (Beaufort) Precipitation Visibility	15 8/8 2 Moderate Precipitation: Heavy rain immediately before survey start	18 6/8 2 Good None
20.06.2023	Breeding bird survey (2)	05:30 – 08:30	Jake Matthews	Temperature (°C)	14	16

Date	Survey type (visit no.)	Start / end time	Surveyor	Weather conditions (start)							
				Measurement	**Start**				**End**		
				Cloud cover (Oktas)	2/8				6/8		
				Wind speed (Beaufort)	2				2		
				Precipitation	None				None		
				Visibility	Excellent				Excellent		
30.06.2023	Breeding bird survey (3)	06:00 – 08:30	Jake Matthews	Temperature (°C)	14				16		
				Cloud cover (Oktas)	8/8				8/8		
				Wind speed (Beaufort)	3				3		
				Precipitation	Drizzle				None		
				Visibility	Good				Good		
04.07.2023	Breeding bird survey (4)	20:30 – 22:00	Jake Matthews	Temperature (°C)	13				12		
				Cloud cover (Oktas)	7				6		
				Wind speed (Beaufort)	2				2		
				Precipitation	None (heavy rain noted prior to survey)				Drizzle		
				Visibility	Good				Poor (due to low light)		
06.07.2023 – 13.07.2023	Bat activity static recording	Recorded overnight for duration of the dates	Deployed and retrieved by Jake Matthews	**Measurement / Date[25]**	6th	7th	8th	9th	10th	11th	12th
				Temperature (°C) (high/low)	18/17	19/14	15/9	14/12	14/13	14/13	11/11
				Wind speed (Beaufort)	15	22	7	8	10	14	6
				Precipitation	None	None	None	None	Rain	None	None

[25] Weather noted for sunset times. Daytime weather was not considered. Date was determined by date of sunset.

3.3.3 Limitations

3.3.3.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, as it is reliant on the availability of good existing data and is intended mainly to set a context for the study. It is, therefore, possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the project site but have not been previously recorded. Interpretation of maps and aerial photography has been carried out using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the study area.

3.3.3.2 Field Surveys

The field survey for this site was carried out in July and as such is within the optimum survey period for identifying flora. There were no other limitations to this survey as there were no barriers to access and the weather conditions were suitable for this type of survey.

Breeding Birds

The breeding bird surveys were not commissioned until late into the breeding bird season. Therefore, the first breeding bird survey was not conducted until 13th June 2023. This is considered midway through the breeding bird season, and whilst it is still considered within the correct timeframe to survey for breeding birds according to current guidance[26], many woodland and edge species may have finished breeding by this point. Despite this, the surveys were still within the optimal timings as per the guidance[27], it would still be possible to assess for late breeding activity through the observation of fledglings and family groups. Furthermore, nesting activity and alarm calling was noted during the surveys. As such, this is not considered a major constraint to the survey.

The breeding bird survey guidelines state that a minimum of six breeding bird surveys should be undertaken, unless fewer surveys are justifiable. The Site underwent a total of four breeding bird surveys. At this point, it was assessed that, considering the results of the four surveys returning only common and widespread birds as well as the Site's small size and common and widespread habitats within the Site, that additional surveys would not provide relevant data. The breeding bird season was already considered late at this point, and it was assessed that no new breeding activity would be noted. As such, this is not considered to pose a significant constraint to the assessment.

Bats

The static bat detector was deployed on the Site between 06.07.2023 to 13.07.2023. The bat survey guidelines states that the static detector should be deployed for a minimum of five consecutive nights in optimal weather conditions. Rain was noted on 10.07.2023, which is likely to have limited the bat activity on that night. As such, the static detector was deployed on the Site for a period of seven nights, meeting the minimum recommended within the guidance. Additionally, the results show that bats were recorded on every night, including that noted with heavy rain. As such, it is considered that the adverse weather had no significant constraints to the assessment.

Badgers

A walkover for badgers was conducted on the Site. Additionally, incidental badger evidence was noted when possible, during other surveys. However, areas of the Site and Fitzsimon's Wood pNHA were densely vegetated with scrub. It was not possible to extensively search all areas due to impenetrable

[26] https://birdsurveyguidelines.org/methods/survey-method/#:~:text=Generally%2C%20surveys%20of%20the%20breeding,species%20will%20have%20tailed%20off. (Accessed 15.06.2024)

[27] National Roads Authority (2008). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. https://www.tii.ie/technical-services/environment/planning/Ecological-Surveying-Techniques-for-Protected-Flora-and-Fauna-during-the-Planning-of-National-Road-Schemes.pdf (last accessed 16.06.2024).

vegetation. It is possible that potential badger setts were missed as a result. This constraint has been considered in the assessment. Moreover, it is assessed that the main sett has been identified through sett 1 and the other setts (including potential unidentified setts) are of less importance to the badgers on the Site. It is assessed that badger activity is more concentrated to the scrub and woodland to the north, which is further from the proposed development relative to identified setts, including the closest sett, which is sett 1. As such, it is assessed that the greatest potential impacts are relevant to sett 1, and potential unidentified setts are most likely located further from the proposed development and less likely to be impacted as a result.

3.4 Assessment Approach

The ecological evaluation and assessment within this chapter has been undertaken with reference to relevant parts of the 2018 Guidelines for EcIA in the UK and Ireland developed by the CIEEM. Although this is recognised as current good practice for ecological assessment, the guidance itself recognises that it is not a prescription about exactly how to undertake an EcIA; rather, they *"provide guidance to practitioners for refining their own methodologies"*[28]. The approach to impact assessment also has regard to advice set out in the EPA guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) published in 2022.

3.4.1 Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

3.4.2 Determining Importance

The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International (European)
- National (Ireland)
- County (Dublin)
- Local (higher value)
- Local (lower value)

The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this report.

In assigning a level of value to the population of a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 - 2012 and BoCCI.

3.4.3 Impact Assessment

The impact assessment process involves the following steps:

- Identifying and characterising potential impacts;
- Incorporating measures to avoid and mitigate (reduce) these impacts;

[28] For the full guidance, refer to https://www.cieem.net/data/files/ECIA%20Guidelines.pdf (last accessed August 2023)

- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects (if required); and
- Identifying opportunities for ecological enhancement.

When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action (e.g., the physical loss of habitat occupied by a species during the construction process). Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or feature (e.g., the creation of roads that cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland).

Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure, and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

3.4.4 Significant Effects

The 2018 CIEEM guidance sets out information in paragraphs 5.24 through to 5.28 of the guidance document, which describes the concept of ecological significance. Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

A significant effect, for the purposes of EcIA, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g., for a designated site) or broad (e.g., national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

The nature of the identified effects on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the site, habitat, or population's structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

3.4.5 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a

proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

Other plans and projects that should be considered when establishing cumulative effects are:

- Proposals for which consent has been applied but which are awaiting determination;
- Projects which have been granted consent, but which have not yet been started or which have been started but are not yet completed (i.e., under construction);
- Proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- Constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- Developments specifically referenced in a National Policy Statement, a National Plan or a Local Plan.

3.4.6 Avoidance, Mitigation, Compensation and Enhancement

When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

It is important for the EcIA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided (i.e., through changes in scheme design);
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- Compensation describes measures taken to offset residual effects (i.e., where mitigation in situ is not possible); and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

4.0 Baseline Ecological Conditions

This section sets out the baseline ecological conditions at the Site using the findings of the desk study and the ecological field survey and additional Site information.

4.1 Nature Conservation Sites

4.1.1 Natura 2000 Sites

There are no Natura 2000 sites within 2km of the Site. The nearest Natura 2000 site is Wicklow Mountains SAC [002122] and SPA [004040] located approximately 4.8km south-west of the Site.

An Appropriate Assessment (AA) screening[29] was prepared for the Site and this report concluded that the proposed project, either individually or in combination with other plans or projects, will not have an adverse effect on the integrity of any Natura 2000 sites. Therefore, Natura 2000 sites are scoped out and excluded from any further consideration in this report.

4.1.2 Nationally Designated Nature Conservation Sites

The closest NHA to the project site is Fitzsimon's Woods pNHA [001753] which comprises one of few remaining native woodlands and is located immediately north of the Site. The pNHA site synopsis[30] gives the following account of Fitzsimon's Wood:

> *Fitzsimon's Wood occupies an area of approximately 8 ha near Lamb's Cross in Sandyford, Co. Dublin. The woodland consists of mature birch (Betula spp.) with some oak (Quercus spp.), together with a well-developed understorey of Holly (Ilex aquifolium). Natural regeneration is occurring and there is a profuse growth of young birch, ash (Fraxinus excelsior), oak and other species. Some marshy areas also occur within the woodland. An area of heath, dominated by Gorse (Ulex europaeus) scrub is also included in the site. The underlying rock of the area is granite and where this outcrops it is often covered with ferns and mosses.*
>
> *Fitzsimon's Wood is directly adjacent to a housing estate and is subject to significant recreational pressure. Dumping of cars and rubbish is a problem. The sporadic removal of wood, coupled with campfires, also poses a threat to the site. These activities will need to be controlled if the gradual attrition of the wood is to be prevented. Nonetheless, 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).*

According to a management plan of the pNHA[31] the conservation objectives include:

1. To maintain and where possible enhance the ecological value of the semi-natural woodland habitat.
2. To maintain and where possible enhance the ecological value of semi-natural habitats on the site.
3. To initiate and continue effective liaison between NPWS and Dún Laoghaire-Rathdown County Council, the landowners, on the management of the site.
4. To amend the site boundary in order to include an area of gorse scrub and ponds with smooth newt *Triturus vulgaris* and common frog *Rana temporaria* populations and exclude a small area of housing in the north of the site.

[29] SLR Consulting (2023) AA Screening Report

[30] NPWS (2009)

[31] Parks Department, DLRCC, NPWS, and The Heritage Service (2003), Conservation Plan – Fitzsimon's Wood pNHA. (Last accessed September 2023).

A biodiversity audit of Fitzsimon's Woods pNHA was carried out in 2021[32] to inform the development of a management plan for the pNHA. The habitat plan has been included in Appendix C of this report. The study included the pNHA and the adjacent Gorse Hill and identified the following habitats:

- Buildings and artificial surfaces (BL3);
- Other artificial lakes and ponds (FL8);
- Dry calcareous and neutral grassland (GS1);
- Dry-humid acid grassland (GS3);
- Dense bracken (HD1);
- Oak-birch-holly woodland (WN1); and
- Scrub (WS1).

Fitzsimon's Woods pNHA is assessed as important on a County level and will be assessed further in this report (refer to Section 5.2).

The habitats within Fitzsimon's Woods and Gorse Hill are detailed in Section 3.2.2.

4.1.3 Land Designation

The proposed works is zoned under 'Objective A' under the Header Dún Laoghaire-Rathdown County Development Plan 2022-2028[33]. The Site is designated to provide residential development and improve residential amenity while protecting the existing residential amenities.

4.2 Habitats

Habitats present within the Site, as recorded during the walkover survey, are described in this section. Habitat classification follows that of '*A Guide to Habitats in Ireland*'[34]. A habitat map for the site is provided in Figure 2 at the end of this report.

Habitats present within the Site, as recorded during the field survey conducted for the PEA report, are described in this section. The proposed development areas, located within the Site ownership boundary, have been differentiated on the proposed development plans (Appendix A). All site photographs from the field survey are included in Appendix D.

No Annex I habitat (under the Habitats Directive) was identified within the site.

The following sections detail each habitat in further detail.

4.2.1 On-site

4.2.1.1 Dry meadows and grassy verges (GS2)

Most of the Site is covered by unmanaged species poor dry meadow grassland, comprising approximately 1.28 ha. This habitat was made up predominantly of coarse grass species such as Yorkshire fog *Hocus lanatus*, Cock's foot *Dactylis glomeratus* and false oat grass *Arrhenatherum elatius*. There are areas of dense, dormant ragwort *Senecio* sp., tall nettle *Urtica dioica* and occasional thistles *Cirsium arvense* and foxglove *Digitalis purpurea*.

This habitat is not considered an Annex I habitat and comprises common and widespread species. However, it likely provides valuable foraging habitat for a range of fauna, including badgers, birds, and

[32] Tubridy M., (2021) Fitzsimons Wood Survey Report 2020

[33] https://dlrcocouncil.maps.arcgis.com/apps/webappviewer/index.html?id=6e5e0fb0384a47dcb61cbf4e36eb6dcc (last accessed June 2023)

[34] Fossitt, (2000), https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf (last accessed August 2023).

bats. It may also provide and maintain links and ecological corridors between features of higher ecological value (i.e., woodland / pNHA). Therefore, this habitat is assessed as important on a **local (lower value) level**.

4.2.1.2 Scrub (WS1)

Approximately 0.65 ha of scrub makes up the northern and western sections of the Site, and it is dominated by dense patches of gorse *Ulex europaeus* or areas of hawthorn *Crataegus monogyna* mixed with bramble *Rubus fruticosus* and, in places, extensive bracken *Pteridium aquilinum* with occasional holly *Ilex aquifolium*, elder *Sambucus niger* and young ash *Fraxinus excelsior* and willow *Salix* sp. trees. In the northwest corner of the Site there was a small stand of Himalayan honeysuckle *Leycesteria formosa* growing in the gorse.

This habitat type is commonly occurring throughout Ireland although less so in the urban setting where it occurs in isolated patches. However, it is considered to provide important habitat maintaining links and ecological corridors between features of higher ecological value (i.e., the woodland / pNHA). Therefore, the scrub habitat within the Site is evaluated as important at the **local (lower value) level**.

4.2.1.3 Mixed broadleaved woodland (WD2)

Approximately 0.16 ha of woodland in the northern section of the Site is an extension of Fitzsimon's Wood pNHA, which consists of mature birch *Betula* spp. with some oak *Quercus* spp., and a naturally regenerating population of young birch, ash and other species. There is an understorey of holly *Ilex aquifolium* with some alder *Alnus glutinosa* and hazel *Corylus avellana* on the edges of the woodland.

The woodland on Site is partially comprised of birch and such woodland is rare in Co. Dublin. Therefore, this woodland as it is an extension of Fitzsimon's Wood is evaluated as important at the National level.

This habitat is commonly occurring throughout Ireland and as some it on the Site is comprised of non-native tree species it is evaluated as important at the **national level**.

4.2.1.4 Recolonising Bare Ground (ED3)

Approximately 0.42 ha of recolonising bare ground was noted in two areas on the southern boundary of the Site. There was evidence of recolonising grasses and forbs, although bare ground made up of soil substrate made up the majority of these areas. It is assumed that the bare ground was a result of the road widening works ongoing at Blackglen Road at the time of the surveys and writing.

This habitat is of limited ecological value, although has the potential to support a diverse range of flora, which may provide additional benefits to local fauna. Therefore, this habitat has been assessed as important on a **local (lower value) level**.

4.2.1.5 Buildings and artificial surfaces (BL3)

There is a sealed path in the north-eastern corner of the Site which leads into Fitzsimon's Wood, and, which currently provides the public with access to the Site.

This habitat has limited ecological or biodiversity value and is evaluated as not important. As such, it has been **scoped out** from further assessment.

4.2.1.6 Treelines (WL2)

Approximately 90 m of treelines are situated along the southern boundary of the Site adjacent to the Blackglen Road, and between the Site and the private properties facing the Blackglen Road. Much of this habitat along the road has recently been removed presumably to facilitate road widening. Trees that remain are predominately sycamore *Acer pseudoplatanus* and hawthorn with occasional ash. There are some non-native species such as cherry laurel *Prunus laurocerasus* and some conifer species present in the private hedgerows along the southern boundary.

This habitat is likely of value to a range of fauna, including invertebrates, nesting birds and foraging bats. Its importance has been assessed on a **local (lower value) level**.

4.2.2 Fitzsimon's Woods and Gorse Hill

A habitat survey of Fitzsimon's Woods pNHA was undertaken between March 2019 and February 2020 in 2021 by Mary Tubridy[35] (refer to Appendix C for the habitat map). The habitats are summarised and assessed in isolation in the sections below. However, when considered in combination, and contributing to the DRLCC Ecological Network as well as providing important wildlife corridors to local fauna, the vegetated habitats comprising Fitzsimon's Woods and Gorse Hill are assessed as being important on a **county level**.

4.2.2.1 Buildings and artificial surfaces (BL3)

Artificial surfaces included a tarmac path running through the pNHA, as well as adjacent buildings located to the north-east of the pNHA.

4.2.2.2 Other artificial lakes and ponds (FL8)

A total of eight ponds were identified within gorse hill, within the gorse scrub. As such, they were often heavily shaded. Photographs of the ponds have been provided in Appendix D. Several of the ponds were found to be dry during the site surveys and are considered to be ephemeral, only occasionally holding water during periods of heavy rain.

The ponds do not comprise Annex I habitat. However, they are known to hold local breeding newt populations, which are important and county level (refer to Section 3.3.2). The ponds are therefore also assessed as important on a **county level**.

4.2.2.3 Dry calcareous and neutral grassland (GS1) and dry-humid acid grassland (GS3)

One area of semi-natural grassland and one area of dry-humid acid grassland were located within clearings of the woodland. These are not considered to comprise any Annex I habitat. However, both areas were found to support native flora and provide value for a range of invertebrates, with ringlet butterflies *Aphantopus hyperantus*, and meadow brown butterflies *Maniola jurtina* (Tubridy, 2021).

As such, the grassland habitats both considered as important on a **local (higher value) level**.

4.2.2.4 Dense bracken (HD1)

Dense bracken was located to the west of the pNHA, surrounded by the woodland habitat. This habitat does not comprise any Annex I habitat, although it does comprise native flora, and may provide some foraging value to local fauna such as birds and may also support invertebrates and newts during their terrestrial phase.

Therefore, dense bracken has been assessed as important on a **local (higher value) level**.

4.2.2.5 Oak-birch-holly woodland (WN1)

The woodland habitat within Fitzsimon's Wood pNHA has been identified as an example of *Annex I habitat 91A0 sessile oak woods with Ilex and Blechum in the British Isles*.

This habitat is considered to comprise a 'viable area' of an Annex I habitat listed in the Habitats Directive and comprises nationally important native woodland. Therefore, it been assessed as important on a **national level**.

[35] Tubridy M., (2021). Fitzsimons Wood Survey Report 2020

4.2.2.6 Scrub (WS1)

Dense scrub dominated by gorse bordered the woodland, offering suitable habitats for a range of fauna, including smooth newts. This habitat dominated the Gorse Hill area, located to the east of the Site and to the South-east of Fitzsimon's Woods.

This habitat does not comprise any Annex I habitat, although it does comprise native flora, and may provide some foraging value to local fauna such as birds and may also support invertebrates and newts during their terrestrial phase.

Therefore, scrub has been assessed as important on a **local (higher value) level**.

4.3 Species

4.3.1 Flora

4.3.1.1 Desk Study

The data search returned no records of notable flora.

4.3.1.2 Field Survey

No notable flora was identified on the Site during the field survey, with much of the Site comprising common and widespread habitats.

As such, notable flora is assessed as likely absent on the Site and have been scoped out from further assessment.

4.3.2 Amphibians

4.3.2.1 Desk Study

The data search returned a total of 8 for common frog (all eight records were attributed to O1825), with the most recent record in 2019.

The data search returned three records of smooth newt (two records in O1725; and one record in O1825), with the most recent record in 2018. In addition, previous surveys of the ponds confirmed breeding smooth newt populations present (Tubridy, 2006; Smal, 2007).

4.3.2.2 Field Survey

There were no lakes or ponds noted on the Site. However, eight ponds were identified immediately to the east of the Site in the Gorse Hill area, and one large pond located to the north-west of the Site, which are suitable for amphibians. The grassland, scrub and woodland habitats provide suitable terrestrial habitats for amphibians.

There is no suitable breeding habitats within the application boundary. All ponds identified within the ZoI were located within Gorse Hill, located to the east of the Site and one pond identified in the development area to the north-west of the pNHA.

Two newt surveys were conducted within the ponds in Gorse Hill located to the east of the application area. The results of these surveys are detailed fully in Appendix E. The pond located to the north-west of the pNHA was too overgrown and hazardous to survey.

In summary, breeding smooth newts were confirmed as present within these ponds. Incidental sightings of common frog were also noted, and the ponds offer suitable spawning habitat for them. It is, therefore, likely that common frog also use the ponds for breeding, although no frog spawn or juveniles were noted.

The surrounding habitats, including the Site's grassland and scrub habitats, as well as the habitats comprising Gorse Hill and Fitzsimon's woods pNHA provide suitable habitat for these species during their terrestrial phases.

As such, smooth newts and common frog are assessed as present on the Site, and smooth newts have been assessed as important on a **county level** while common frog have been assessed as important on a **local (higher value) level**.

4.3.3 Reptiles

4.3.3.1 Desk Study

The data search returned no records of common lizard. Additionally, no records of common lizard have been returned in other surveys associated with the pNHA, with Tubridy (2021), stating that common lizard are unlikely to use the pNHA and therefore, the adjacent Site.

4.3.3.2 Field Survey

The woodland, tussocky grassland and scrub likely provide suitable shelter and foraging habitat for common lizard.

No common lizards were noted during any of the site surveys undertaken on the Site. Furthermore, limited basking opportunities were identified within the survey area. The woodland and scrub is densely planted and provides high levels of shade further limiting basking opportunities.

As such, common lizards are anticipated to be absent from the Site but a small population cannot be ruled out. Therefore, reptiles have been assessed as important on a **local (higher value) level**.

4.3.4 Birds

4.3.4.1 Desk Study

Table 4-1 details the bird records returned within each of the 1km^2 squares.

Table 4-1: Data search results for birds within O1725 and O1825

Species	Scientific name	1km^2 square	Number of records	Date of last record
Black-billed Magpie	*Pica pica*	O1825	2	2019
Coal Tit	*Periparus ater*	O1825	2	2019
Common Blackbird	*Turdus merula*	O1825	1	2016
Common Buzzard	*Buteo buteo*	O1825	1	2019
Common Wood Pigeon	*Columba palumbus*	O1825	1	2019
Eurasian Siskin	*Carduelis spinus*	O1825	1	2019
Eurasian Sparrowhawk	*Accipiter nisus*	O1825	1	2019
European Goldfinch	*Carduelis carduelis*	O1825	1	2018
European Robin	*Erithacus rubecula*	O1825	1	2019
Lesser Redpoll	*Carduelis cabaret*	O1825	1	2019
Long-tailed Tit	*Aegithalos caudatus*	O1825	1	2018
Mealy Redpoll	*Carduelis flammea subsp. flammea*	O1825	1	2019
Common pheasant	*Phasianus colchicus*	O1725	1	2016

Birds recorded during a previous field survey in June 2020 included wood pigeon *Columba palumbus*, hooded crow *Corvus cornix*, magpie *Pica pica*, robin *Erithacus rubecula*, blackbird Turdus *merula*,

song thrush *Turdus philomelos*, jackdaw *Corvus monedula*, chaffinch *Fringilla coelebs*, wren *Troglodytes troglodytes* and starling *Sturnus vulgaris*.

Information of a bird survey conducted within Fitzsimon's Wood pNHA, conducted in October 2019 found the site to support buzzard *Buteo buteo*, woodpigeon *Columba palumbus*, robin *Erithacus rubecula*, blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, coal tit *Periparus ater*, long-tailed tit *Aegithalus caudatus*, wren *Troglodytes troglodytes*, magpie *Pica pica*, rook *Corvus frugilegus*, hooded crow *Corvus cornix*, starling *Sturnus vulgaris*, chaffinch *Fringilla coelebs*, lesser redpoll *Carduelis cannabina*, and goldfinch *Carduelis carduelis*.

In addition, it was considered that the pNHA is also suitable for tree creeper *Certhia familiaris*, goldcrest *Regulus regulus*, dunnock *Prunella modularis*, bullfinch *Pyrrhula pyrrhula*, siskin *Carduelis spinus*, greenfinch *Carduelis chloris*, song thrush *Turdus philomelos*, redwing *Turdus iliacus*, fieldfare *Turdus pilaris*, blackcap *Sylvia atricapilla*, willow warbler *Phylloscopus trochilus*, chiffchaff *Phylloscopus collybita*, spotted flycatcher *Muscicapa striata*, and swallow *Hirundo rustica*.

4.3.4.2 Field Survey

The Site has undergone four breeding bird surveys. Appendix F details all birds noted on the Site at this point. In summary, a total of 26 bird species were recorded within the survey area during the breeding bird surveys including:

- No BoCCI red-listed species;
- Four BoCCI amber-listed species;
- 22 BoCCI green-listed species; and
- No Annex I (Birds Directive) species.

The breeding status of the 26 recorded species were assessed as follows:

- Nine species were confirmed breeding (all comprising green-listed species);
- 10 species were probable breeding (including two BoCCI amber-listed species);
- Three species were considered possible breeders (all comprising green-listed species); and
- Four species were considered overflying / foraging / non-breeding (including two BoCCI amber-listed species).

Recorded species identified on the Site are detailed in Table 4-2, along with the assessed number of territories and the breeding status.

Table 4-2: Bird species identified on the Site

Species	Scientific name	Conservation status[36]	No. of confirmed potential territories	Breeding status
Blackbird	*Turdus merula*	Green-listed	4	Probable
Blackcap	*Sylvia atricapilla*	Green-listed	0	Confirmed
Blue tit	*Cyanistes caeruleus*	Green-listed	3	Confirmed
Bullfinch	*Pyrrhula pyrrhula*	Green-listed	1	Confirmed
Chiffchaff	*Phylloscopus collybita*	Green-listed	3	Confirmed
Chaffinch	*Fringilla coelebs*	Green-listed	0	Possible
Coal tit	*Periparus ater*	Green-listed	0	Possible
Dunnock	*Prunella modularis*	Green-listed	0	Possible

[36] As listed under BoCCI and listed on Annex I of the Habitats Directive

Species	Scientific name	Conservation status[36]	No. of confirmed potential territories	Breeding status
Goldcrest	*Regulus regulus*	Amber-listed	1	Probable
Goldfinch	*Carduelis carduelis*	Green-listed	1	Probable
Great tit	*Parus major*	Green-listed	1	Probable
Herring gull	*Larus argentatus*	Amber-listed	0	Non-breeding
Hooded crow	*Corvus Cornix*	Green-listed	0	Confirmed
Jay	*Garrulus glandarius*	Green-listed	1	Confirmed
Jackdaw	*Corvus Monedula*	Green-listed	1	Probable
Long-tailed tit	*Aegithalos caudatus*	Green-listed	1	Confirmed
Magpie	*Pica pica*	Green-listed	2	Confirmed
Pheasant	*Phasianus colchicus*	Green-listed	0	Confirmed
Robin	*Erithacus rubecula*	Green-listed	2	Probable
Raven	*Corvus corax*	Green-listed	0	Non-breeding
Rook	*Corvus frugilegus*	Green-listed	0	Non-breeding
Song thrush	*Turdus philomelos*	Green-listed	1	Probable
Starling	*Sturnus vulgaris*	Amber-listed	0	Non-breeding
Willow warbler	*Phylloscopus trochilus*	Amber-listed	3	Probable
Wood pigeon	*Columba palumbus*	Green-listed	3	Probable
Wren	*Troglodytes troglodytes*	Green-listed	7	Probable

Further details, including the number of locations of records are provided in Appendix F. All target bird species recorded during the breeding bird surveys are mapped in Figures 4.1 – 4.4. Potential territories are mapped in Figure 5.

Overall, the habitats on the Site provide suitable breeding habitat for bird species which are commonly found in urban areas. However, Fitzsimon's Woods pNHA, provides woodland and scrub habitats adjacent to the Site, which may provide valuable nesting habitat for notable woodland species.

BoCCI Species Summary

Red-listed Birds

No red-listed BoCCI bird species were recorded during the surveys, and it is assessed that breeding red-listed BoCCI species are likely absent on the Site.

Amber-listed Birds

Four BoCCI amber-listed species were recorded, comprising goldcrest, herring gull, starling and willow warbler.

Goldcrest and willow warbler are assessed as probable breeders on the Site. Goldcrest generally nest in woodland habitat and willow warbler nest in tall shrubs, such as scrub and woodland habitat[37].

Herring gull and starling were assessed as being non-breeding, flyover species. However, they may find foraging value on the Site. Additionally, starling, whilst assessed as non-breeding from the surveys, can find nesting value within woodland habitat, as well as within offsite residential dwellings.

[37] Collins

Green-listed Birds

The breeding bird surveys identified 22 green-listed bird species on the site (refer to Table 4-2Table 4-2: Bird species identified on the Site). These comprised passerine species which are assessed to find nesting value within the scrub and woodland within the Site and the surrounding habitats.

Passerine Nesting Birds

The data search returned ten records of passerine bird species (see Table 4-1) and the breeding bird surveys (see Table 4-2) identified mostly species of passerine bird species within the Site and surrounding area, many of which were assessed as confirmed, probable, or possible breeding. Most records were common and widespread species, although notable, amber-listed species were also noted (see above).

Therefore, passerine birds are assessed as present on the Site, including notable, amber-listed species, which are considered to use the Site for breeding. As such, passerine birds are considered important to a **local (lower) level**, and have been considered for further assessment.

Ground Nesting Birds

One example of a ground nesting bird was returned in the data search (see Table 4-1), comprising common pheasant *Phasianus colchicus*. Additionally, a family group of pheasants (comprising a female with juveniles) was recorded within the Site's grassland habitat during the second breeding bird survey (see Table 4-2). This would indicate that the Site does possess suitability for ground nesting birds, with suitable habitat comprising scrub and grassland.

However, it should be noted that the Site is heavily used by dog walkers and other recreational purposes and the Site is close to residential urban areas. As such with significant levels of disturbance and anti-social behaviour. Additionally, the grassland habitat, which represent much of the proposed construction area of the Site is relatively small in size, and greater quantities of suitable habitats for ground nesting birds is located adjacent offsite, bordering Fitzsimon's Woods pNHA as well as a larger extent being present in nearby offsite upland areas. Furthermore, it is anticipated that foxes and badgers, which are confirmed present on the Site, would likely predate on ground nesting birds if they were to use the Site due to its small size.

It is, therefore, assessed that in general pheasants are more likely breed outside the Site and use the Site mainly for foraging purposes. Furthermore, no other notable ground nesting birds such as skylark *Alauda arvensis* were recorded on the Site.

As such, despite, pheasant being confirmed breeding on the Site, in general ground nesting birds are assessed as likely absent on the Site and they have been discounted from further assessment.

Birds of Prey

Two examples of a bird of prey were returned in the data search, comprising sparrowhawk *Accipiter nisus* and buzzard *Buteo buteo* (see Table 4-1). The breeding bird surveys recorded no birds of prey on the Site and no trees were found on the Site or within Fitzsimon's Woods pNHA that were suitable for nesting barn owl *Tyto alba*.

Woodland habitat within Fitzsimons Woods pNHA could support nesting birds of prey such as buzzard and sparrowhawk, although there was sightings of any birds of prey during the breeding bird surveys. The limited areas of trees within the Site's red line boundary are considered less likely to support nesting birds of prey due to high levels of human disturbance. Both species may find foraging value within the Site and surrounding habitat. The woodland could provide foraging value to sparrowhawk and the grassland could provide foraging value to buzzards.

In summary, breeding birds of prey are found to be likely absent from the Site but they may use the grassland habitats for foraging. As such, birds of prey have been assessed as important at a **local (higher value) level**.

4.3.5 Bats

4.3.5.1 Desk Study

The data search returned a total of 2 records of bats (all attributed to O1725). These comprised one record of Leisler's bat *Nyctalus leisleri* in 2010, and one record a soprano pipistrelle *Pipistrellus pygmaeus* in 2010.

Previous surveys and reports recorded bat presence in adjacent areas:

- Five species of bats within Fitzsimon's Wood or on adjacent proposed development plots, including brown long-eared bat, Daubenton's bat, Leisler's bat, common pipistrelle and soprano pipistrelle[38].
- One soprano pipistrelle when conducting bat surveys on the adjacent plot to the east of the Site[39]. It was noted from this survey that there is considerable overspill of light from streetlights, buildings and passing cars affecting a significant section of this area and which is likely decreasing levels of bat activity.

The Site's 'Bat Landscapes' suitability was assessed through consultation with Biodiversity Maps. The results of this are detailed in Table 4-3.

In summary, the Site's habitats were scored as having low suitability for all bats. The landscape scored as most favourably for Leisler's bat, followed by common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle, and brown long-eared bat *Plecotus auritus*.

The Site scored least favourably (i.e., negligible to low) for lesser horseshoe bat *Rhinolophus hipposideros*, Daubenton's bat *Myotis daubentonii*, Nathusius' pipistrelle *Pipistrellus nathusii*, Natterer's bat *Myotis nattereri* and whiskered bat *Myotis mystacinus*. Overall (with supplementary data from the static deployment – refer to Appendix G) these species are considered likely absent from the Site.

Table 4-3: Bat landscape score for the Site[40]

Bat species	Scientific name	Bat suitability index score
All bats	N/A	17.44
Leisler's bat	*Nyctalus leisleri*	34
Common pipistrelle	*Pipistrellus pipistrellus*	32
Soprano pipistrelle	*Pipistrellus pygmaeus*	30
Brown long-eared bat	*Plecotus auritus*	23
Whiskered bat	*Myotis mystacinus*	14
Natterer's bat	*Myotis nattereri*	11
Nathusius' pipistrelle	*Pipistrellus nathusii*	10
Daubenton's bat	*Myotis daubentonii*	3
Lesser horseshoe bat	*Rhinolophus hipposideros*	0

[38] Wilson (2017).

[39] D'Arcy (2021).

[40] https://maps.biodiversityireland.ie/Map (last accessed June 2023)

4.3.5.2 Field Survey

Roosting Bats

Habitats within the site were evaluated for bat foraging, commuting and roosting suitability using current guidance[41]. Trees within the proposed site were evaluated for their potential to support roosting bats. All of the trees inspected were not of sufficient size and age and lacked potential roost features that may be used by bats. The largest trees on the site were found within the treelines along the southern boundary of the Site but these too did not have any Potential Roosting Features (PRFs).

As such, no roosting bats are considered present on the Site. However, roosting bats are anticipated to be present in Fitzsimon's Woods pNHA and have been assessed as important on a **county level**.

Commuting and Foraging Bats

The habitats present on the Site have suitable features for foraging by bats including the treelines, scrub and unmanaged grassland and these may be utilised by the known but limited bat populations in the area[42]. Woodland, treelines and scrub habitats within the Site are moderately suitable for foraging and commuting bats. In addition, these habitats provide connectivity with the wider landscape. However, it should be noted that the Site is relatively small in size and located within an urban area, which limits the potential for commuting and foraging bats.

A static detector was deployed on the Site between 06.07.2023 and 12.07.2023. The location of the static detector is provided in Figure 6. The results of the static detector are presented in Appendix G. In summary:

- The Site was mostly used by Leisler's bat with a total 150 records. Leisler's bat was recorded on all seven of the nights surveyed, with a peak of 30 passes recorded on 11/07/2023.
- A total of 56 records of common pipistrelle was recorded on the Site. Common pipistrelle was recorded on all seven of the nights surveyed, with a peak of 31 passes recorded on 09/07/2023.
- A total of 13 records of soprano pipistrelle was recorded on the Site. Soprano pipistrelle was recorded on two of the seven nights surveyed, with a peak of eight passes recorded on 08/07/2023.
- Two records of brown long-eared bat were recorded on the Site, with one pass recorded on 06/07/2023 and one on 10/07/2023.
- Two records of whiskered bat were recorded on the Site. Whiskered bat was recorded on two of the seven nights surveyed, with one pass recorded on 06/07/2023 and one on 08/07/2023.
- One record of Daubenton's bat was recorded on the Site on 06/07/2023.
- Analysis of the static bat detector results noted that many of recordings included foraging behaviour, with terminal buzzes present.

As such, bats are considered to use the Site mainly for commuting and foraging purposes and the Site is assessed to have **low suitability** for commuting and foraging bats. With the exception of Daubenton's bat, which could be a whiskered bat as the calls are difficult to differentiate, the static bat detector results support the bat landscape suitability (Table 4-3), with the Site most suitable for Leisler's bat, following by common pipistrelle, soprano pipistrelle, brown long-eared bat and whiskered bat. The bat assemblage of the Site is evaluated as important at the **Local (higher value) level**.

[41] Collins, (2016). Bat Conservation Trust Good Practice Guidelines, and criteria outlined in Bat Surveys for Professional Ecologists.

[42] Wilson (2017) and D'Arcy (2021).

4.3.6 Badger

4.3.6.1 Desk Study

The data search returned a total of three records of badger (two records of badger on O1725; and one record of badger in O1825), with the most recent record in 2018.

Previous surveys and reports identified three active badger setts in the adjacent woodland area of Fitzsimon's Wood during a survey of the biodiversity of the area carried out by Tubridy (2006). During the walkover survey of Fitzsimon's Wood was conducted by D'Arcy (2021), only one of these badger setts was relocated, and it did not appear to active at the time.

4.3.6.2 Field Survey

Suitable habitats for badgers were present on the Site and included woodland, scrub and grassland. These habitats provide suitable habitat for foraging and sett creation.

The Field survey identified four potential badger setts within the Site and within the adjacent Fitzsimon's Woods pNHA. ***(N.B. All badger sett locations have been omitted from this report in order to protect badgers from potential persecution. The badger sett locations have been provided to DLRCC in a separate confidential report)***. The setts identified are summarised below:

- Sett 1 (Plate 6-1 to Plate 6-4) comprised an active sett. Sett 1 had three entrances, which were clear of debris, with evidence of active digging and fresh spoil piles. Badger monitoring using a trail camera on 12.06.2023 – 13.06.2023 confirmed badger presence at Sett 1, with at least two badgers noted. As such, Sett 1 was assessed as an active main sett.
- Sett 2 (Plate 6-5 to Plate 6-10) was made up of three entrances. Evidence of fresh digging was noted outside Sett 2 and entrances were clear of debris and leaf litter, with spoil piles noted outside (although not to the extent or as fresh as that of sett 1). Cotton wool was observed inside the entrance to one entrance, and it is anticipated that this may have been used for bedding. It should be noted that the surrounding habitat had significant levels of fire damage. As such, Sett 2 was assessed as an active annex sett. Although it may be that Sett 2 comprised a main sett and recent fire damage may have driven the badgers away.
- Sett 3 (Plate 6-11 to Plate 6-14) was made up of four entrances. There was significant amounts of debris and leaf litter were present blocking the entrances and no fresh spoil or evidence of badger activity was noted. As such Sett 3 was assessed as a disused annex sett.
- Sett 4 (Plate 6-15 to Plate 6-16) was made up of two entrances. The sett was considered disused as there was no evidence of activity with leaf litter in the two entrances and old spoil heaps. As such Sett 4 was assessed as a disused outlier sett.

Sett 1 was found to be active, with camera footage showing potentially two badgers emerging from the sett. Refer to the Preliminary Badger Report for further details of the results for badgers on the Site.

Several potential mammal pathways and areas of badger foraging activity were identified within Fitzsimon's Woods pNHA. It is assessed that the woodland and scrub habitat provide valuable foraging habitat for badger. No confirmed badger activity was identified within the grassland habitat within the Site. It is anticipated that this habitat provides suitable foraging habitat for this species. However, it is likely that the scrub and woodland habitat to the north of the Site is of higher value for foraging badgers.

Setts 4 are assessed as disused and are sufficiently distant from the proposed development (i.e., greater than 150 m) to be scoped out from further assessment. Setts 1 is assessed as active and Sett 2 is also potentially active. As such, Setts 1 and 2 have been considered for further assessment. Sett 3 is considered disused but is located within 150 m and has been considered further.

In summary, badgers are confirmed present on the Site and are assessed as important on a **county level**.

4.3.7 Other Mammals

4.3.7.1 Desk Study

Table 4-4 details returned records of other mammals within the two 1km^2 squares.

Table 4-4: Returned records of other terrestrial mammals within O1725 and O1825

Species	Scientific name	1km2 square	Number of Records	Date of last record
European Rabbit	*Oryctolagus cuniculus*	O1725	18	2013
Eurasian Red Squirrel	*Sciurus vulgaris*	O1825	1	2016
Pine Marten	*Martes martes*	O1825	1	2021
Pygmy shrew	*Sorex minutus*	O1725	5	2014
Red fox	*Vulpes vulpes*	O1825	6	2017
West European Hedgehog	*Erinaceus europaeus*	O1825	5	2021

4.3.7.2 Field Survey

Pine Marten

No incidental sightings of pine marten *Martes martes* were noted on the Site during the field surveys. However, one previous record was returned within close proximity to the Site and woodland habitat provides suitable habitat for this species. The Site is situated inside known pine marten distribution[43]. As such, pine martin is assessed as likely present in the Site and this species has been scoped in for further assessment.

In summary, pine marten could be present and is assessed as important on a **local (higher value) level**.

Red Squirrel

No incidental sighting of red squirrel *Sciurus vulgaris* were noted on the Site during the field surveys. However, woodland located on the Site and adjacent to the Site provide suitable habitat for this species and the Site is situated within areas of red squirrel distribution[44]. However, it is anticipated that grey squirrel is also present in the local area. The presence of grey squirrel limits the distribution and likelihood of red squirrel being present. However, the presence of red squirrel cannot be discounted.

As such, red squirrel could be present and is assessed as important on a **local (higher value) level**.

Hedgehog

No incidental sightings of hedgehog *Erinaceus europaeus* were noted on the Site. However, the habitats comprising the Site, including woodland, scrub, and grassland provide suitable foraging and refugia habitat for this species.

As such, hedgehog *Erinaceus europaeus* are assessed as likely present on the Site and have been assessed as important on a **local (higher value) level**.

[43] As per Biodiversity Maps https://maps.biodiversityireland.ie/Map (last accessed 16.06.2023).

[44] As per Biodiversity Maps https://maps.biodiversityireland.ie/Map (last accessed 16.06.2023).

Red Fox

A live fox *Vulpes vulpes* was noted on the Site, located at ITM coordinates 717941 725812. Additionally, fox droppings were noted within the grassland habitat, but no dens were observed on the Site. Foxes are present on the Site, and likely use the Site for foraging purposes. However, foxes are common and widespread, with no legal conservation protection.

As such, red fox have been assessed as important on a **local (lower value) level**.

Rabbit

Evidence of rabbit *Oryctolagus cuniculus* was also noted through droppings at several areas along the fringe of the grasslands and scrub habitats. No rabbit burrows were observed on the site. Rabbits are assessed as likely present on the Site. However, they are granted no formal protection.

As such, rabbits have been assessed as important on a **local (lower value) level**.

4.3.8 Invertebrates

4.3.8.1 Desk Study

Table 4-5 details the returned records of invertebrates within the two 1km^2 squares.

Table 4-5: Returned records of invertebrates within O1725 and O1825

Species	Scientific name	1km2 square	Number of Records	Date of last record
Bombus	*Bombus lucorum*	O1725 & O1825	3	2008
Bombus	*Bombus terrestris*	O1725 & O1825	2	2021
Common Carder Bee	*Bombus Thoracombus pascuorum*	O1725	1	2008
Dark Arches	*Apamea monoglypha*	O1725 & O1825	2	2020
Dun-bar	*Cosmia trapezina*	O1725	1	2017
Elephant Hawk-moth	*Deilephila elpenor*	O1725	1	2019
Garden Carpet	*Xanthorhoe fluctuata*	O1725	1	2017
Grey Arches	*Polia nebulosa*	O1725	1	2017
Heart & Dart	*Agrotis exclamationis*	O1725 & O1825	6	2020
Ingrailed Clay	*Diarsia mendica*	O1725	1	2017
Marbled Minor agg.	*Oligia strigilis agg.*	O1725	1	2017
Mottled Beauty	*(Alcis repandata*	O1725	1	2017
Purple Clay	*Diarsia brunnea*	O1725	1	2017
Scalloped Oak	*Crocallis elinguaria*	O1725	1	2017
Small Magpie	*Eurrhypara hortulata*	O1725	1	2017
Willow Beauty	*Peribatodes rhomboidaria*	O1725 & O1825	4	2020
Green Shieldbug	*Palomena prasina*	O1725 & O1825	2	2022
Hawthorn Shieldbug	*Acanthosoma haemorrhoidale*	O1725	1	2019
7-spot Ladybird	*Coccinella septempunctata*	O1825	2	2019
Common Blue	*Polyommatus icarus*	O1825	2	2008
Green-veined White	*Pieris napi*	O1825	8	2008
Holly Blue	*Celastrina argiolus*	O1825	10	2008

Species	Scientific name	1km2 square	Number of Records	Date of last record
Large White	*Pieris brassicae*	O1825	7	2008
Meadow Brown	*Maniola jurtina*	O1825	6	2008
Orange-tip	*Anthocharis cardamines*	O1825	8	2021
Painted Lady	*Vanessa cardui*	O1825	1	2019
Peacock	*Inachis io*	O1825	11	2021
Red Admiral	*Vanessa atalanta*	O1825	1	2008
Ringlet	*Aphantopus hyperantus*	O1825	5	2008
Small Copper	*Lycaena phlaeas*	O1825	5	2008
Small Heath	*Coenonympha pamphilus*	O1825	1	2019
Small Tortoiseshell	*Aglais urticae*	O1825	12	2019
Small White	*Pieris rapae*	O1825	6	2008
Speckled Wood	*Pararge aegeria*	O1825	19	2019
Wall	*Lasiommata megera*	O1825	2	2008
Common Blue Damselfly	*Enallagma cyathigerum*	O1825	1	2019
Large Red Damselfly	*Pyrrhosoma nymphula*	O1825	1	2019
Migrant Hawker	*Aeshna mixta*	O1825	1	2020
Andrena sp.	*Andrena spp.*	O1825	7	1930
Anoplius	*Anoplius nigerrimus*	O1825	2	1923
Blunt Tailed Digger Wasp	*Crossocerus dimidiatus)*	O1825	1	1896
Common Wasp	*Vespula (Paravespula) vulgaris)*	O1825	1	2019
Grey Mining Bee	*Andrena (Melandrena) cineraria*	O1825	1	1930
Halictus	*Halictus rubicundus*	O1825	1	1923
Hill Cuckoo Bee (Bombus	*Psithyrus rupestris*	O1825	1	1923
Honeyvbee	*Apis mellifera*	O1825	2	2020
Marsham's Nomad Bee	*Nomada marshamella*	O1825	1	1923
Neat Mining Bee	*Lasioglossum (Evylaeus) nitidiusculum*	O1825	1	1923
Priocnemis sp.	*Priocnemis sp.*	O1825	2	1923
Sphecodes geoffrellus	*Sphecodes geoffrellus*	O1825	1	1923
Bee Moth	*Aphomia sociella*	O1825	1	2020
Bordered White	*Bupalus piniaria*	O1825	1	2020
Brimstone Moth	*Opisthograptis luteolata*	O1825	2	2020
Common Emerald	*Hemithea aestivaria*	O1825	1	2020
Common Lutestring	*Ochropacha duplaris*	O1825	1	2020
Common Marbled Carpet	*Chloroclysta truncata*	O1825	2	2020
Common Pug	*Eupithecia vulgata*	O1825	2	2020
Common Swift	*Hepialus lupulinus*	O1825	1	2020
Fan-foot	*Zanclognatha tarsipennalis*	O1825	1	2020

Species	Scientific name	1km2 square	Number of Records	Date of last record
Flame Carpet	*Xanthorhoe designata*	O1825	2	2020
Flame Shoulder	*Ochropleura plecta*	O1825	1	2020
Grey Dagger	*Acronicta psi*	O1825	1	2012
Grey Pine Carpet	*Thera obeliscata*	O1825	3	2020
Large Yellow Underwing	*Noctua pronuba*	O1825	2	2020
Light Emerald	*Campaea margaritata*	O1825	1	2020
Poplar Hawk-moth	*Laothoe populi*	O1825	2	2022
Riband Wave	*Idaea aversata*	O1825	2	2020
Scalloped Hazel	*Odontopera bidentata*	O1825	2	2020
Turnip Moth	*Agrotis segetum*	O1825	1	2020
Uncertain	*Hoplodrina alsines*	O1825	1	2020
Juniper Shieldbug	*Cyphostethus tristriatus*	O1825	1	2022

4.3.8.2 Field Survey

Significant numbers of micro moths were noted within the grassland habitat on the Site during the field surveys. Additionally, an unidentified dragonfly species was noted in scrub habitat within Fitzsimon's Wood pNHA and the Site.

The woodland and habitats will support large numbers of invertebrates, including notable species. Moreover, aquatic habitats are present immediately adjacent to the Site, which will support aquatic invertebrates, and potentially notable species.

As such, the Site is assessed to be of importance to local invertebrates, including potentially notable species. However, the greatest value habitats are located immediately offsite through Fitzsimon's Woods pNHA.

Therefore, invertebrates have been considered for further assessment and have been assessed as important on a **local (higher value) level**.

4.3.9 Invasive non-native Species

4.3.9.1 Desk Study

Table 4-6: Returned records of invasive species within O1725 and O1825Table 4-6 details the returned records of invasive non-native species within the two 1km^2 squares.

Table 4-6: Returned records of invasive species within O1725 and O1825[45]

Species	Scientific name	1km^2 Square	Number of records	Date of last record
Eastern Grey Squirrel	*Sciurus carolinensis*	O1725 & O1825	8	2022
Fallow Deer	*Dama dama*	O1725	1	2016
Japanese Knotweed	*Reynoutria japonica*	O1825	2	2015
Sika Deer	*Cervus nippon*	O1725 & O1825	4	2018
Three-cornered Garlic	*Allium triquetrum)*	O1825	1	2020

[45] As subject to Regulation 49 of the Habitats Directive as listed in Part 1 and Part 2 of the Third Schedule within the Directive.

Species	Scientific name	1km² Square	Number of records	Date of last record
Water Fern	*Azolla filiculoides*	O1725	1	1992

4.3.9.2 Field Survey

Non-native plant species noted on the site include sycamore *Acer pseudoplatanus*, which make up some of the treelines along the southern Site boundary where there is also some ornamental non-native shrubbery and conifer trees growing in the gardens of the housing plots.

As mentioned above there is a stand of Himalayan honeysuckle *Leycesteria formosa* growing in amongst the gorse in the north-west corner of the Site. This may have spread from a neighbouring garden.

None of the invasive plant species noted on the Site are listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended and subject to restrictions under Regulations 49 and 50.

As such, invasive species have been **scoped out** from further assessment.

4.4 Summary of Important Ecological Features

Table 4-7 summarises all important ecological features for which detailed assessment is required. The geographical scale of importance for the ecological features within the Site are summarised along with their legal status and a rationale, where appropriate, for carrying forward any features for detailed assessment.

Table 4-7: Summary of important ecological features subject to further detailed assessed[46]

Ecological feature	Scale of importance	Comments and legal status
Fitzsimon's Woods pNHA	County	• pNHA are listed on a non-statutory basis and have not been statutorily proposed or designated. Prior to statutory designation, pNHAs are subject to limited protection, in the form of several criteria, including recognition for its ecological value of pNHAs by Planning and Licencing Authorities.
Native woodland	National	• pNHA and Annex I old oak woodland
Treelines	Local (higher value)	• Does not comprise Annex I habitat • Provides valuable semi-natural habitat for nesting birds and potentially roosting bats
Scrub	Local (higher value)	• Does not comprise Annex I habitat • Provides valuable semi-natural habitat for local fauna
Ponds	County	• The ponds provide valuable natural habitats for breeding smooth newt and common frog
Dry calcareous and neutral grassland / dry-humid acid grassland	Local (higher value)	• Does not comprise Annex I habitat • Provides valuable semi-natural habitat for local fauna
Dense bracken	Local (higher value)	• Does not comprise Annex I habitat • Provides valuable semi-natural habitat for local fauna
Smooth newt	County	• Protected under the Schedule Wildlife Act 1976 (and subsequent amendments)

[46] Following TII Guidelines for Assessment of Ecological Impacts of National Roads Schemes

Ecological feature	Scale of importance	Comments and legal status
		• Several ponds which are isolated by road infrastructure. Therefore, may represent an isolated population within the region.
Common frog	Local (higher value)	• Listed on Annex V of the Habitats Directive • Protected under the Schedule Wildlife Act 1976 (and subsequent amendments) • Several ponds which are isolated by road infrastructure. Therefore, may represent an isolated population within the region.
Common lizard	Local (higher value)	• Protected under the Schedule Wildlife Act 1976 (and subsequent amendments)
Roosing bats	County	• All bats are listed on Annex IV of the Habitats Directive and are protected under the Wildlife Act 1976 (and subsequent amendments). • Roosting bats likely present within adjacent offsite woodlands but considered absent from the Site.
Bats	County	• All bats are listed on Annex IV of the Habitats Directive and are protected under the Wildlife Act 1976 (and subsequent amendments). • Bats likely to use the Site for foraging and commuting.
Common passerine birds	Local (higher value)	• All birds are protected under the Schedule Wildlife Act 1976 (and subsequent amendments) during the breeding bird season (i.e., 1st March to 31st August). • Nesting birds considered present within scrub and woodland habitats.
Ground nesting birds	Local (higher value)	• No notable ground nesting birds are assessed as breeding on the Site. • All birds are protected under the Schedule Wildlife Act 1976 (and subsequent amendments) during the breeding bird season (i.e., 1st March to 31st September).
Birds of prey	Local (higher value)	• No birds of prey are assessed as breeding on the Site. • Birds of prey such as sparrowhawk, kestrel and buzzard may find foraging value on the Site.
Wintering birds	Local (higher value)	• Wintering birds considered foraging on the Site
Amber-listed birds	Local (higher value)	• Protected under the Schedule Wildlife Act 1976 (and subsequent amendments). • Amber-listed goldcrest and willow warbler are assessed to be present and breeding on the Site. • Amber-listed starling and herring gull may find foraging value on the Site.
Badger	County	• Protected under the Wildlife acts 1976 and subsequent amendments. • Badgers confirmed present on the Site, with a main sett present within the Site and setts and foraging located adjacent offsite.
Pine marten	Local (higher value)	• Listed on Annex V of the Habitats Directive and are protected under the Wildlife Act 1976 (and subsequent amendments). • Unconfirmed on the Site or the pNHA. • Woodland provides suitable habitat for pine marten within and adjacent to the Site.

Ecological feature	Scale of importance	Comments and legal status
Red squirrel	Local (higher value)	• Protected under the Schedule Wildlife Act 1976 (and subsequent amendments). • Unconfirmed on the Site or the pNHA. • Woodland provides suitable habitat for pine marten within and adjacent to the Site.
Hedgehog	Local (higher value)	• Protected under the Wildlife acts 1976 and subsequent amendments. • Unconfirmed on the Site or the pNHA. • Likely to find foraging value on the Site's grassland, woodland, and scrub.
Red fox and rabbits	Local (lower value)	• No legal protection but confirmed present on the Site and should be considered to avoid harm during the construction phase.
Invertebrates	Local (higher value)	• Notable invertebrates are protected under the Wildlife (Amendment) Act, 2000. • Notable species considered present, with valuable woodland and aquatic habitats located on the Site or immediately adjacent.

5.0 Assessment of Effects and Mitigation Measures

This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect, and cumulative effects. The potential effects resulting from the proposed development works and proposed mitigation measures are discussed in the following sections.

5.1 Do Nothing Impact

Without the proposed development, the Site will likely continue to be used as an informal dog walking area. Without management, the scrub and woodland may encroach within the existing grassland habitat. It is anticipated that Fitzsimons Woods pNHA would likely to continue to undergo the current level of recreational pressure and anti-social behaviour and is likely to continue to undergo long-term degradation as a result. The Site will continue to be used by fauna such as amphibians, nesting and foraging birds, commuting, and foraging bats, badger, and hedgehog.

5.2 Nationally Designated Nature Conservation Sites

While pNHAs are not statutory listed and afforded the same protections as formal NHAs, this pNHA is still informally recognised for its value to ecology and biodiversity. Furthermore, Policy GIB18[47] (refer to Appendix C) recognises that pNHA should be included for protection under the policy. Non-designated areas of high nature conservation value (such as Fitzsimon's Woods pNHA) known as locally important areas which also serve as 'Stepping-stones' for biodiversity.

Therefore, without appropriate mitigation, proposed development may negatively impact the pNHA and breach Policy GIB18 of the DLR County Development Plan 2022 – 2028.

5.2.1 Potential Impacts

5.2.1.1 Construction Phase

The vegetation clearance is limited to the application boundary. No vegetation clearance should affect the pNHA. As such, **no significant impacts** are predicted to Fitzsimon's Woods pNHA during the construction phase.

5.2.1.2 Operation Phase

Fitzsimon's Woods pNHA is currently under significant recreational pressure from existing nearby residents. This includes the dumping of cars and rubbish, as well as the occasional removal of wood and creation of campfires, which poses a threat to the condition of the pNHA.

The proposed development will create 129 additional residential dwellings. This has the potential to increase the recreational pressure on the pNHA and may lead to an increase in litter, dumping, and dog walking throughout the pNHA. This is assessed to lead to long-term significant negative impacts to the pNHA through the gradual decrease of its condition and ability to support biodiversity.

Approximately 27% of Irish households own a pet dog[48]. As such, it can be predicted that of the proposed 129 dwellings, 32 may own a dog and this may include more than one. Therefore, the recreational pressure on the pNHA could be negatively impacted by increased dog walking and potentially dog fouling.

[47] Of the DLR County Development Plan 2022 – 2028.

[48] Statista (2023), https://www.statista.com/statistics/517020/households-owning-cats-dogs-europe-ireland/#:~:text=As%20of%202022%2C%2027%20percent,Ireland%20owned%20a%20pet%20dog. (last accessed September 2023)

5.2.2 Proposed Mitigation Measures

There will be no loss of habitats comprising the pNHA and the woodland will be protected Heras fencing to demarcate the limits of the construction zone and provide a protective buffer to the designated site; this will avoid any accidental losses of habitats that contribute to the pNHA. A permanent fence will be erected along the northern boundary of the Site to prevent any impingement on the woodland habitats within the pNHA from residents of the housing project, and also restrict access to established paths through the woodland.

The proposed development can help the pNHA achieve its conservation and operational objectives. Local residents should be encouraged to be involved in action groups to maintain or improve the habitats and biodiversity of the pNHA. However, whether this can be considered appropriate mitigation due to some or all of these strategies already being in place is uncertain. Table 5-1 details the strategies laid out in the management plan of the pNHA to address its objectives.

Table 5-1: Operational objectives and strategies of the pNHA

Objectives	Strategies
Objective 1: To enhance the ecological value of the dry, broadleaved, semi-natural woodland and lowland, dry grassland habitats.	**Strategy 1.1: Improve the ecological value of the dry, broadleaved, semi-natural woodland by removing alien species from the wood.** Alien species, in particular Sycamore and Beech, should be removed in certain parts of the site to allow further regeneration of native woodland species. Older trees should be ring-barked and younger trees cut and stumps treated in order to minimise damage to the woodland structure. NPWS will liaise with Dún Laoghaire-Rathdown County Council in relation to this strategy.
	Strategy 1.2: Improve the ecological value of the woodland by preventing, where possible, further fires. At present there are occasional campfires and accidental/deliberate fires in the woodland and surrounding scrub. Their prevention will involve increased monitoring of the site and may be complemented by providing information on the importance of the site on the proposed noticeboards.
	Strategy 1.3: Improve the ecological value of the Lowland, dry grassland through the implementation of either a suitable grazing or mowing regime. This area has been grazed in the past thus preventing this incursion by scrub species, however, with the current absence of grazing these species are now colonising. Either a low level of grazing by the introduction of a small number of grazing livestock or by introducing a mowing method which encourages wildflower species and keeps back the grasses and scrub species.
Objective 2: To extend the boundary on the south-east of the site in order to include the area of gorse scrub where the ponds contain smooth newt and common frog populations. Also to exclude the small part of Kilcross housing estate which is inside the northern boundary of the site.	**Strategy 2.1: Improve the ecological value of the site by making site boundary amendments through liaison with Dún Laoghaire-Rathdown County Council.**
Objective 3: To manage and maintain open areas to provide complementary habitats and connections to semi-natural habitats.	**Strategy 3.1: Installing paths to facilitate the public and steer them away from the more fragile habitats.** There are several rough paths through the site at present. These could be made more accessible with the provision of proper surfacing. Parts of the present paths are suitable

Objectives	Strategies
	presently – these are in areas where the granite is outcropping, and the paths have granite sand surface. This may be a suitable surface for the rest of the paths.
	Strategy 4.2: Notice/information boards highlighting the conservation importance and wildlife importance of the site. The provision of such notice-boards are important for the local community who are interested in, but lack knowledge of the site. The notice-boards may also help in the protection of the site from fires and vandalism as the profile of the site will be increased in the local area. Proposed board locations are marked on Map 5.
	Strategy 4.3: Liaise with community groups with regard to educational potential.
Objective 4: To increase research on the site.	**N/A**
Objective 5: To increase scientific knowledge of the site, in particular little is known of the invertebrate and bat populations of the site.	**Strategy 5.1 Further research on the fauna of the site is recommended.** In particular little is known of the Invertebrate and Bat populations of the site. It appears from site visits that the Invertebrate fauna is likely to be particularly diverse. The small size of the site and its location close to Dublin make it an ideal candidate for a third level research project.
	Strategy 5.2: Further research on the history of the site is recommended. The site appears to have an interesting history with links of national interest. Historical research will provide valuable information that could be used as part of the educational facilities proposed for the site.
Objective 6: To achieve consensus on the conservation management of the site with Dún Laoghaire-Rathdown County Council, local community, and other interested parties.	**N/A**

Alien species including beech and sycamore will be managed and removed from the Site. The proposed soft landscaping plan will also take this into consideration within its proposed species list, taking care not to include potentially alien species onto the Site which could spread onto the pNHA.

Gorse will be thinned out where appropriate and a mixture of different scrub species that are less susceptible to fire will be included in the soft landscaping proposals where scrub planting is planned.

Deadwood created from vegetation clearance on the Site can be added into the woodland to create additional opportunities for invertebrates, fungi, as well as creating potential refugia for small mammals and amphibians.

In order to relieve some of the recreational pressure predicted to impact Fitzsimon's Woods pNHA through the proposed development. New and existing residents can be encouraged to use the pNHA responsibly. This could be achieved through the provision of new signage on pathways within the pNHA, to encourage public to remain on pathways, avoid littering, and keep their dogs on leads.

Moreover, leaflets can be provided in all new dwellings stating the importance of the adjacent pNHA site, the pressures it faces, and measures to maintain its favourable condition, such as:

- Information on the importance of the pNHA for ecology and biodiversity;
- Guidance on the potential impacts irresponsible dog walking can have on biodiversity;
- Encourage public engagement on the pNHA (e.g., through 'Friends of Fitzsimon's Woods' voluntary group).

These measures can be implemented through the provision of planning conditions.

5.2.3 Significance of Residual Effects

Without mitigation the proposed development is likely to lead to an increased recreational pressure, increased littering, dog walking / fouling and potentially anti-social behaviour. These impacts are considered significant and may impact Annex I habitat negatively.

The construction of the fence and the controlled access to the woodland combined with local education and participation in woodland conservation groups such as Friends of Fitzsimon's Woods', would see reduced impact on the pNHA and the overall impact would be slightly negative but with the possibility of some positive impacts.

5.3 Habitats

Policy Objective GIB22 states the following:

> "*It is a Policy Objective to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance - including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, Birds and Habitats Regulations 2011, Flora (Protection) Order, 2015, Annex I habitats, local important areas, wildlife corridors and rare species - are adequately protected.*"

None of the habitats on the Site are considered to comprise Annex I habitats under the Habitats Directive. However, the woodland is considered of national level important, and scrub and grassland habitats may offer value to biodiversity and are valued at a local level.

5.3.1 Potential Impacts

5.3.1.1 Construction Phase

No Annex I habitat will require removal to facilitate the proposed development. Almost all of the proposed development will occur on the dry meadow and grassy verges and recolonising bare ground with minor areas of mixed broadleaved and conifer woodland and scrub habitat also requiring removal to facilitate the development. None of these habitats are associated with Fitzsimons Woods pNHA. **Error! Reference source not found.** Table 5-2 details the predicted habitat net loss required on the Site to facilitate the proposed development.

Table 5-2: Predicted unmitigated habitat loss on the Site

Habitat	Habitat area baseline	Predicted habitat loss	Unmitigated percentage loss
Dry meadow and grassy verges	1.28 ha	1.26 ha	98%
Scrub	0.65 ha	0.20 ha	31%
Recolonising bare ground	0.42 ha	0.42 ha	100%
Mixed broadleaved woodland	0.16 ha	0.08 ha	50%
Buildings and artificial surfaces	N/A	N/A	N/A

Habitat	Habitat area baseline	Predicted habitat loss	Unmitigated percentage loss
Treelines	96 m	0 m	0%

Grassland, scrub and recolonising bare ground habitat are important at a local level. Their losses are not considered significant and will contribute a minor negative impact at a local scale.

The native woodland is important at national level and comprises the habitat of highest value to be impacted to facilitate the proposed development. All woodland loss is considered significant at a national scale. However, the impacts will be limited with only 0.08 ha requiring removal to facilitate the proposed development.

5.3.1.2 Operation

The proposed development will lead to an increase in recreational pressure through walkers, dog walkers, as well as potential anti-social behaviour such as littering and fires. This could lead to trampling and degradation of retained habitats as well as increased dog fouling increasing nutrient load, which may impact floral species composition.

All retained habitats would be susceptible to increased littering and antisocial behaviour. The ponds are considered most at risk, which are of county value due to their importance to breeding newts and common frog.

The potential impacts during the operational phase are considered long-term and may without appropriate mitigation could lead to negative impacts to habitats of national, county, and local level importance.

5.3.2 Proposed Mitigation and Compensation Measures

The proposed development plans (Appendix A) show that the proposed development will mostly require the loss of dry meadow and grassy verges and recolonising bare ground. Woodland loss is to be minimised where possible and will be restricted to isolated and single trees within the site boundary, and there will be no loss of the woodland associated with Fitzsimons Woods pNHA. Only relatively small areas of scrub and woodland removal is required to facilitate the proposed development (approximately 0.20 ha of scrub and 0.08 ha of woodland). Any retained scrub and woodland habitats must be protected and buffered with suitable fencing to prevent accidental loss or damage during the construction phase.

A preliminary Construction Environment and Management Plan (CEMP) has been produced and should be adhered to during the construction phase. This plan will detail protectional measures for retained trees and habitats, including suitable buffer zones for root protection areas. A detailed Final Construction and Environment Management Plan (CEMP) will be submitted for agreement with the planning authority at least 5 weeks prior to the commencement of the proposed development including enabling works. This will include site specific details, drawings and specifications of the measures to protect biodiversity that have been outlined in the EcIA and planning documents. These will be outlined in a Biodiversity Section of the CEMP with input from a suitably qualified ecologist for biodiversity and an invasive species specialist.

Habitat loss will be compensated for through the creation of new habitats within the proposed development. These areas will provide new treelines, scrub, shrub, and grassland habitat, which will help to compensate for the habitat lost. Furthermore, new valuable aquatic habitat will be created through the provision of an attenuation reed pond, located to the north-east of the Site. The Site boundaries will receive additional natural planting to enhance the existing and retained scrub and woodland habitats.

It is recommended that a soft landscaping plan is created for the Site to provide further details for newly created soft landscaped areas and detail planting schedules and required maintenance with the benefit of biodiversity in mind during the operational phase.

5.3.3 Significance of Residual Effects

It is assessed that the loss of mostly dry meadow and grassy verges will not impact potential existing wildlife corridors within the area. Furthermore, habitats along the Site boundaries and beyond the Site boundaries will be largely retained and enhanced, maintaining existing potential wildlife corridors and the limited necessary loss of woodland and scrub will have a negligible effect on these when considered with proposed compensation planting.

In summary, losses to mostly grassland and recolonising bare ground habitats will be required to facilitate the proposed development. Necessary losses of woodland and scrub habitats will be kept to a minimum, with compensatory planting being created on the Site. This will limit the potential impact to habitats within the Site, and it is assessed that the extent of the habitat loss will not be significant.

5.4 Amphibians

The presence of smooth newt and common frog was confirmed in the offsite ponds during the newt surveys and the Site's grassland, scrub and woodland habitats provide suitable terrestrial habitats for both species.

Consultation with Biodiversity Maps demonstrates that smooth newts within Ireland are well distributed across Ireland[49], particularly within the Dublin area. Consultation with Biodiversity Maps demonstrates common frog are common and widespread within Ireland, with a favourable population, range and considered least concern[50]. However, both species are threatened by habitat loss and fragmentation, and developments such as roads and urban areas can isolate populations and limit distribution. Therefore, any impacts to amphibians through the proposed works are assessed to be limited to the local area.

Frogs and smooth newts are afforded protection under the Wildlife Act, which states the following:

> *"It will be an offence to hunt, take or kill any of these species or wilfully to interfere with or destroy their breeding places."*

5.4.1 Potential Impacts

5.4.1.1 Construction Phase

The proposed development will cause no direct impacts to the offsite ponds. However, the unmitigated construction activities may indirectly impact these ponds through pollution runoff, which may impact breeding places and cause an offence under the Wildlife Act.

The grassland, woodland and scrub provide suitable foraging, refugia and hibernation habitats for amphibians. The necessary removal of these habitats will cause the permanent loss of terrestrial habitat on the Site for these species, which may impact the local population.

Individual newts and frogs may be harmed or killed during the construction phase through vegetation clearance, which may impact amphibians during their terrestrial phases. Individual amphibians may be crushed by moving plant or fall into uncovered excavations. Improperly disposed materials may provide refugia for amphibians, which may be harmed once these are cleared or moved. Uncovered excavations may also trap amphibians within them.

5.4.1.2 Operation

The operational phase is anticipated to include the installation of drainage systems that link to existing drain infrastructure. Amphibians can often fall into open drains and become trapped and the proposed

[49] https://maps.biodiversityireland.ie/Species/6993 & Meehan, S.T. (2013). IWT National smooth Newt Survey 2013 report. Dublin, Ireland (Last accessed 04.07.2023)

[50] https://species.biodiversityireland.ie/profile.php?taxonId=6863 & https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf

development may lead to an increased risk of amphibians drowning created drainage. This may cause an overall long-term decrease of amphibian population on the Site and immediate surrounding area.

5.4.2 Proposed Mitigation and Compensation Measures

All offsite ponds must remain unimpacted during the construction and operational phases. As mentioned above, it is recommended that a Final CEMP is produced and adhered to during the construction phase. This plan will detail protectional measures for newts and common frogs, as well as the offsite breeding ponds. Refer to Section 1.1 for further details. It will also include general construction mitigation provisions to minimise impacts to amphibians during the construction phase.

In order to minimise the risk of amphibians becoming trapped in new drainage on the Site, it is recommended that all drains incorporate an amphibian ladder[51] into the design, allowing amphibians to climb and escape. This will limit the long-term impact to the Site's amphibian population.

Vegetation clearance will be supervised by a qualified ecologist, undertaking a finger-tip search to check for common amphibians prior to the vegetation removal. Any amphibians found will be translocated to retained and suitable habitats in the pNHA and Gorse Hill.

It is recommended that follow-up surveys are undertaken of the ponds by suitably qualified ecologists at years 3, 5, and 10 to monitor that amphibians are still using the breeding ponds and have not been significantly impacted by the proposed development. This would consist of the survey techniques as detailed in Section 2.3.2.1. An NPWS licence would be required for these activities.

5.4.3 Significance of Residual Effects

Under the current development proposals and recommended mitigation and compensation measures in place it is assessed that the breeding ponds will not undergo significant effects. There will be no clearance of vegetation in the area where the newt ponds are located. While small areas of terrestrial habitats may be lost during site clearance, additional planting detailed in the soft landscaping plan will compensate for terrestrial habitat losses to a degree. The habitats around the breeding ponds will be managed to enhance these areas for amphibians, providing a positive impact.

Amphibians are generally limited in their dispersal, however, if the mitigation proposed above is implemented then the impacts to localised populations can be reduced and the proposed development will have a negligible effect on their conservation status.

5.5 Reptiles

Reptiles are protected under the Wildlife Acts. Their presence on the Site is considered unlikely but cannot be fully discounted.

5.5.1 Potential Impacts

5.5.1.1 Construction Phase

If reptiles are present, the removal of habitats will cause a reduction of suitable habitat for reptiles. This would have a negative impact on a local scale. Although suitable habitats for this species will be retained along the Site boundaries, as well as the pNHA.

Reptiles may also be impacted by general construction activities such as falling into open excavations or uncovered drains. Reptiles may also use unsuitably discarded waste (i.e., waste left outside skips) as potential refugia, which may lead to the harm of individuals once it is removed.

[51] https://www.thebhs.org/images/stories/BHS_gulleyPotLadder-MKII_flier.jpg (Last accessed 04.07.2023)

5.5.1.2 Operation Phase

The degradation of pNHA habitats detailed in Section 5.2 may have a long term impact on common lizard if they are present within the pNHA. Additionally, the increase in expected cat ownership that will affect the pNHA may cause increased predation of this species.

Overall, this would lead to a minor negative impact on this species at a local scale.

5.5.2 Proposed Mitigation and Compensation Measures

The measures set out in the Final CEMP will provide mitigation to minimise potential impacts to reptiles during the construction phase.

Proposed planting will compensate for lost habitats and provide a buffer area between the pNHA and the Site.

5.5.3 Significance of Residual Effects

Common lizard is listed as least concern on the Red List[52]. Their presence on the Site is considered unlikely and any potential small population will be able to withstand most impacts within the retained habitats associated with the pNHA.

Therefore, minor negative impacts to this species are anticipated from the proposed development and these are to be not likely to be significant.

5.6 Birds

Appendix F provides the full breeding bird results. Section 3.3.44.3.3 details the birds likely using the Site.

The Irish bird nesting season is defined in Section 40 of the Wildlife Act 1976 and Section 46 of the Wildlife Act 2000 (as amended) as the period between 1st March and 31st August. This legislation states that:

- It shall be an offence for a person to cut, grub, burn or otherwise destroy, during the period beginning on the 1st day of March and ending on the 31st day of August in any year, any vegetation growing on any land not then cultivated, and;
- It shall be an offence for a person to cut, grub, burn or otherwise destroy any vegetation growing in any hedge or ditch during the period mentioned in paragraph (a) of this subsection".

5.6.1 Potential Impacts

5.6.1.1 Construction Phase

The proposed development will require the removal of mostly grassland and bare ground with limited areas of scrub and woodland required (refer to Section 5.3 for further details). The removal of these vegetated areas may directly impact nesting birds if vegetation removal is undertaken during the breeding bird season (i.e., 1st March to 31st September). This would cause an offence under the Wildlife Act.

The loss of these habitats will cause a reduction of foraging and potential roosting and breeding habitats for birds within the Site. This is considered to pose the most significant impact to the breeding amber-listed birds (i.e., willow warbler and goldcrest). Other species are considered widespread and common, and the impact to these is assessed as a minor negative impact. Wintering birds will experience a reduction in potential foraging habitat, particularly through the scrub removal.

[52] King et al., (2011).

The grassland removal removes the Site's most valuable habitat for ground nesting birds. However, given pheasant comprised the only recorded ground nesting birds on the Site, and with the abundance of dog walking present, the site is considered of limited value to ground nesting birds. Therefore, this is not considered to pose a significant impact.

5.6.1.2 Operation Phase

New dwellings and their associated vegetated gardens may provide additional nesting opportunities for species such as jackdaw, starling, house sparrow, robin, wren, and blackbird. Additionally, vegetated gardens and feeders will provide common garden birds with foraging opportunities. These impacts are likely to have a positive impact for common and local bird species.

The increased number of residents are anticipated to lead to an increase of pet cats that will also have access into the adjacent pNHA. Approximately 12% of household have cats[53], meaning the Site and adjacent pNHA may be impacted by 19 additional cats may (not considering households with multiple cats). Cats have a significant impact on local birds, through predation. The increase of cat numbers is likely to significantly and impact negatively nesting birds, including amber-listed species.

5.6.2 Proposed Mitigation and Compensation Measures

All necessary vegetation removal will be undertaken outside the bird breeding season (i.e., between 1st March – 31st September), where possible. If vegetation removal is required during the breeding bird season a competent ecologist

Significant areas of foraging, roosting, and breeding habitat will be retained and unimpacted along the Site boundaries and within the offsite Fitzsimon's Woods pNHA. Additionally, the offsite woodland may be enhanced through the mitigation detailed in Section 5.2.

The proposed development plans (Appendix A) show that new soft landscaping areas will create additional potential habitats that will provide suitable foraging and roosting opportunities for birds through the creation of gardens and open green spaces. This will compensate for the limited loss of existing foraging, roosting, and breeding habitats on the Site required to facilitate the development.

In addition, it is recommended that a soft landscaping plan is created detailing a planting list and appropriate management for the Site. Native seed or fruit-producing species[54] (or ornamental species with known ecological benefits) should be used where possible, which are more likely to attract and support invertebrates, and increase prey for bats. This will provide foraging opportunities for passerine birds (including amber-listed species) and wintering birds.

Buildings can provide opportunities for a range of birds, including notable species such as starlings, house sparrow, swallows, and swifts. Such species can often use features on the buildings for nesting opportunities. To increase the opportunities provided and compensate for the loss of suitable bird habitats on the Site, it is recommended that bird boxes are positioned onto created buildings within the Site.

Table 5-3 details recommended bird boxes for the proposed development Site. A plan can be produced providing detailed recommended locations, maintenance, and installation instructions for the recommended bird boxes. The bird boxes should be aimed at species that were found to use the Site for breeding and foraging purposes during the bird surveys and desk study (i.e., common passerine species). Note that not all bird species will utilize bird boxes. Therefore, provisions for additional species that are assessed as likely to use the Site have been recommended.

[53] Central Statistics Office (2021). https://www.cso.ie/en/releasesandpublications/fp/fp-pslahsr/pulsesurveymay-june2021-lifeathomesnapshotofresults/snapshotofresults/#:~:text=Over%20half%20(52%25)%20of,the%20start%20of%20the%20pandemic. (Last accessed September 2023).

[54] Examples can be found here: https://www.bto.org/how-you-can-help/providing-birds/wildlife-gardening/plants-fruits-and-seeds (Last accessed June 2023).

Table 5-3: Recommended bird boxes for the proposed development

Bird box / target species	Recommended no.	Details	Photograph example
Swift box	8	Swift boxes can be affixed onto the exterior walls of developments or can be integrated into the brickwork of developments. They should be positioned high on the structure, with a clear, unobstructed flight to the box[55]. Swifts are colonial nesting species. Therefore, several boxes should be positioned within close proximity to one another. They should be positioned onto north-facing aspects where possible to avoid overheating.	
General garden birds[56] Blue tit, coal tit, great tit, house sparrow, wren,	6 (i.e., three of each)	General garden bird boxes affixed onto retained trees can attract a range of common and widespread species such as those recorded during the surveys. Entrances can vary between 28 mm and 32 mm, which can attract and support different birds as a result. These boxes should be positioned at least 2.5 m high (given that cats are likely present). They should be positioned onto north-facing aspects where possible to avoid overheating.	
Starling box[57]	6	Starling boxes can be affixed to retained trees. Starlings are gregarious birds and prefer to nest in colonies, so grouping several boxes together will encourage occupancy. These boxes should be positioned at least 2.5 m high (given that cats are likely present). They should be positioned onto north-facing aspects where possible to avoid overheating.	

5.6.3 Significance of Residual Effects

Under the current development proposals and recommended mitigation and compensation measures in place it is assessed that the impacts, chiefly habitat loss, will not be significant to widespread and common passerine species. These species may even undergo positive impacts due to increased nesting and foraging opportunities.

[55] Further information can be found here: https://www.swift-conservation.org/MakingHomesForSwifts.htm (Last accessed July 2023). Example boxes can be found here: https://www.nhbs.com/search?q=swift (Last accessed July 2023).

[56] Examples can be found here: https://www.nhbs.com/1b-schwegler-nest-box (Last access July 2023).

[57] Examples can be found here: https://www.nhbs.com/vivara-pro-woodstone-starling-nest-box (Last access July 2023).

Amber-listed birds are already experiencing population declines and the impacts to the amber-listed birds identified on Site is considered significantly negative as these species are less likely to benefit from nesting and foraging opportunities created within an urban environment.

5.7 Bats

All Irish bats species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

3.35 In addition to domestic legislation bats are also protected under the EU Habitats Directive (92/43/EEC).

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
    a) To impair their ability:
        i. To survive, to breed or reproduce, or to rear or nurture their young, or
        ii. To hibernate or migrate.
    b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license has to be obtained from the National Parks and Wildlife Service before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by National Parks and Wildlife Services (NPWS).

5.7.1 Potential Impacts

5.7.1.1 Construction Phase

Roosting Bats

No trees located within the Site are suitable for roosting bats. Therefore, the vegetation clearance of scrub and limited areas of woodland is not anticipated to directly impact roosting bats.

The construction phase will lead to a temporary increase in artificial lighting, noise and vibrations. This may impact roosting bats using the pNHA.

Overall, these impacts are likely to be temporary and negative but are not considered significant.

Commuting and Foraging Bats

The removal of these habitats will lead to a permanent reduction of commuting and foraging habitat for bats. The bats that are most likely to be impacted include Leisler's bat, common pipistrelle, and

soprano pipistrelle. Although impacts to brown long-eared and Daubenton's bat, which appear less common on the Site, cannot be ruled out.

The construction phase will lead to a temporary increase in artificial lighting, noise and vibrations. This will impact commuting and foraging bats using the Site and the adjacent habitats. Additionally, this activity may impact roosting bats that are likely present in Fitzsimon's Woods pNHA. This will cause a temporary negative impact on commuting and foraging bats.

The creation of buildings and artificial surfaces will lead to a reduction in commuting and foraging habitat. This will have a permanent negative impact on commuting and foraging bats.

5.7.1.2 Operation Phase

Roosting Bats

The operational phase will lead to a permanent increase in buildings, which may provide additional roosting opportunities that were not present on the Site previously. This could cause a permanent positive impact for roosting bats.

Commuting and Foraging Bats

The proposed development will cause a permanent increase in artificial lighting. This may impact the current populations of bats that currently use the Site for commuting and foraging negatively. However, certain species of bats are able to opportunistically find foraging opportunities from light-trapped invertebrates. Overall, the impact of increased lighting is assessed to be negative and significant for local bats species.

5.7.2 Proposed Mitigation and Compensation Measures

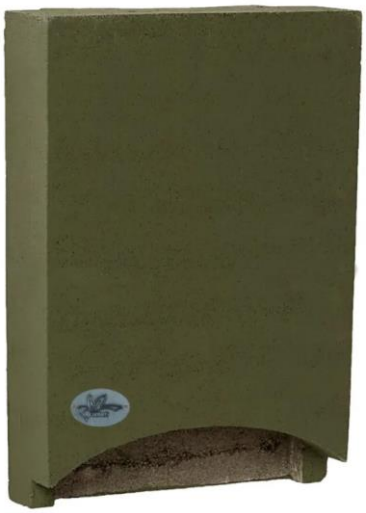
Roosting Bats

No direct impacts to bats are predicted through the proposed development, there is an opportunity to enhance the area for roosting bats through the provision of nest boxes throughout the Site and the pNHA. Recommended bat boxes are aimed at species that are present within the Site and pNHA, as identified through the bat surveys. Table 5-4 provides recommendations for roosting provisions.

Table 5-4: Recommended bat boxes

Bat box / target species[58]	Recommended no.	Details	Photograph example
2FN Schwegler Bat Box Suitable for woodland species	4 Suitable to put multiple boxes onto a single stem (i.e., 2 boxes on different aspects)	The 2FN bat box should be sited in trees and is best positioned at a height of between 3m and 6m. Bat boxes should ideally be sited in open sunny positions.	

[58] Examples can be found here:

Bat box / target species[58]	Recommended no.	Details	Photograph example
Bat access brick	1 per dwelling	The bat brick is a standard sized brick, shaped especially to allow bats to access the cavity of a house. They can be incorporated during both new build or renovation projects.	
Elisa Bat Box Suitable for crevice-dwelling bats such as pipistrelles and Daubenton's Bat.	4 Suitable to put multiple boxes onto a single stem (i.e., 2 boxes on different aspects)	The box can be mounted on a tree or wall. It does include a strong wire loop to make hanging easier. The ideal position for the Elisa, as with any bat box, is a height of at least 3m from the ground, in a sheltered area out of direct sun and away from artificial light sources	

Commuting and foraging bats

The proposed development plans (Appendix A) show that new soft landscaping areas will create additional potential foraging habitat through the creation of gardens and open green spaces. Proposed treelines will create potential commuting corridors throughout the Site. This will compensate for the loss of existing commuting and foraging habitats on the Site.

In addition, it is recommended that a soft landscaping plan is created detailing a planting list and appropriate management for the Site. Native species (or ornamental species with known ecological benefits) should be used where possible, which are more likely to attract and support invertebrates, and increase prey for bats[59].

Artificial Lighting Measures

It is recommended artificial lighting and nightworks is avoided in close proximity to good bat foraging and commuting habitats (e.g., retained scrub and woodland and created greenspace and treelines). If this cannot be achieved, then a sensitive lighting scheme should be implemented on the site following Guidance Note 08/23[60]. These measures are detailed as follows:

- Limit artificial light disturbance on suitable commuting and foraging habitats and provide no-lighting buffer zones between the proposed development and the retained habitats;
- Avoid illumination of bat roost provisions;

[59] Examples for planting can be found on the Bat Conservation Trust (2015). Encouraging Bats – A guide for bat-friendly gardening and living. https://cdn.bats.org.uk/uploads/pdf/Resources/Encouraging-Bats.pdf?v=1646658894&_gl=1*1esi7mo*_ga*OTc1OTUyNDU4LjE2ODYwNDExMzE.*_ga_G28378TB9V*MTY4ODQ3Nzc1MC41LjEuMTY4ODQ3OTI1My4wLjAuMA.. (Last accessed 04.07.2023).

[60] BCT & ILP (2023). Guidance Note 08/23 – Bats and artificial lighting at night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ (Last accessed September 2023).

- Provide no-lighting areas within the Site to create dark corridors in which bats can commute and forage with reduced disturbance;
- Directional lighting where light spillage is avoided. Hoods / cowls can be used to direct light below the horizontal plane (ideally at an angle less than 70 degrees);
- Consideration of the available lighting technology to minimise impacts on bat, such as the use of LED lighting as it emits little UV light, and these lamps can be programmed to switch off, or dim at certain times (as opposed to high pressure sodium, mercury, and white SON). These have been shown to have the least impact on bats (as well as invertebrates – i.e., their prey);
- Lights should be designed to be as low to the ground as possible (specifically not above 8m); and
- Lights switched off at night (particularly during the months of April to October inclusive when bats are active), or at least motion censored.
- Specific lighting specifications will include the following where possible:
    - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;
    - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
    - A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component;
    - Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
    - Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill;
    - Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges;
    - Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards;
    - Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered[61];
    - Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt;
    - Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2-minute timer is likely to be appropriate;
    - Use of a Central Management System (CMS) with additional web-enabled devices to light on demand;
    - Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS;
    - The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination

[61] See ILP GN01 (2021) https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2021/ (Last accessed September 2023)

efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites; and

- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

5.7.3 Significance of Residual Effects

Roosting Bats

Roosting bats within the pNHA may undergo some minor negative impacts during the construction phase. These impacts are not considered significant. Furthermore, there is an opportunity to enhance the Site for roosting bats with additional roosting provisions. This is expected to have a permanent positive impact on roosting bats.

Commuting and Foraging Bats

There will be small loss of commuting and foraging habitat on the Site. However, suitable habitats will be mostly retained through woodland and scrub and offsite areas will also provide significant retained areas for foraging and commuting bats. Additionally, bats will still be able to use the Site for foraging through created soft landscaping areas. The loss of commuting and foraging habitat is considered to pose a slight negative impact to commuting and foraging bats.

The provisions for a sympathetic lighting scheme will help to mitigate some of the potential impacts of artificial lighting. However, the artificial lighting is still expected to cause a minor negative impact to bats. This is not expected to be significant.

The bat survey did identify rarer species of bats through Daubenton's bat and whiskered bat. It is anticipated that these species are more at risk of negative impacts by the proposed development compared to the more common pipistrelle, which are generally more tolerant of urban conditions.

5.8 Badger

Badgers are confirmed present on the Site, with two active setts and two disused setts located on the Site or within 50 m of the Site boundary. Consultation with Biodiversity Maps demonstrates that badgers within Ireland are common and widespread across the country[62].

Badgers are protected under the Wildlife Act, and it is an offence to cause disturbance or destruction of their resting places (i.e., their setts).

5.8.1 Potential Impacts

5.8.1.1 Construction Phase

Without appropriate mitigation, the construction phase has the potential to damage or disturb three setts located within 150 m of the proposed development and harm badgers that may be using it.

Any works undertaken within 50 m (or 150 m for piling) of an active sett during the breeding season (December to June inclusive) risk disturbing or harming badgers and impacting their breeding. This could potentially kill badgers trapped inside, or at the least displace them and could negatively impact the badger population in the long-term and is considered significant.

The planned vegetation clearance will lead to a reduction in habitats suitable for foraging and sett creation.

[62] NBDC, Ireland, Eurasian Badger (Meles meles), accessed 05 July 2023, https://maps.biodiversityireland.ie/Species/119470 (Last accessed July 2023).

Furthermore, general construction activities could potentially harm badgers that use the Site for foraging. Badgers could become trapped if they fall into exposed pits or excavations or uncapped pipes, etc.

These impacts are considered likely to have significant a negative effect on the badgers using the Site and surrounding habitats.

5.8.1.2 Operation Phase

Badgers can be adaptable and tolerant so semi-urban environments and may still find foraging value within the proposed development.

Without appropriate compensation, there will be an overall permanent reduction of foraging habitat with the loss of grassland, scrub, and woodland habitats necessary to facilitate the prosed development. This will also lead to a permanent reduction in habitats suitable for sett creation.

Increased numbers of residents also increases the risk of accidental, reckless, or purposeful damage to existing badger setts. Furthermore, increased recreational use of the pNHA, including increased numbers of dogs, risks impacting badgers further. Dogs could enter setts and attack individual badgers.

These impacts are considered likely to have a significant negative impact on local badgers.

5.8.2 Proposed Mitigation and Compensation Measures

SLR Consulting had a number of consultations with the NPWS regarding the most appropriate mitigation approaches for the badger sett and whether it requires closure to facilitate the proposed development. It was concluded that the development layout would be adjusted so that there would be no construction of houses/apartment buildings or associated hardstanding within 30m of the badger sett. In addition, a permanent fence has been constructed along the northern boundary of the Site to prevent resident from disturbing the sett area or surrounding habitat. The construction of the fence and confirmation of the 30m restriction distance was overseen by an Ecologist from SLR in November 2024.

Therefore, no setts will require closure, and a suitable buffer will be maintained by the fence throughout the construction phase. Additional planting will be created between the sett and the proposed development, to further minimise the likelihood of disturbance to the badgers.

While some foraging habitat may be lost by clearance of the Site the badgers will still have unrestricted access to the woodland and other foraging site in the area.

It is recommended that a badger monitoring scheme is implemented throughout the construction phase. This will be implemented through the provision of trail cameras located outside the sett entrances. Badger activity and behaviour will be monitored, and all works will be stopped at the sign of potential disturbance for further consultation with NPWS.

It is recommended that follow-up surveys are undertaken by suitably qualified ecologists at years 3, 5, and 10 to monitor that badgers are still using the setts and have not been significantly impacted by the proposed development. This would consist of the installation of trail cameras, located outside the sett entrances.

The recommended Final CEMP will provide mitigation measures to be implemented during the construction phase, which will minimise potential impacts to badgers. Refer to Section 5.3 for further details.

Under current TII guidance[63] no piling works should be undertaken if there are setts located within 150 m. If piling is necessary, closure of the three setts, located within 150 m would be required. This would

[63] TII Guidelines for the treatment of badgers prior to road construction. https://www.tii.ie/tii-library/environment/construction-guidelines/Guidelines-for-the-Treatment-of-Badgers-prior-to-the-Construction-of-a-National-Road-Scheme.pdf (Last accessed September 2023).

need a licence under NPWS, as well as the creation of a new artificial sett and monitoring surveys to demonstrate this artificial sett is in use, prior to the closure and removal of existing setts.

5.8.3 Significance of Residual Effects

With the recommended mitigation and the construction of a barrier fence, the badger setts will not require sett closure. The temporary construction disturbance and risks are considered to pose a slight negative short-term impact to badgers.

The operational phase is expected to cause a permanent , slight increase in disturbance relative to current baseline levels, due to increased number of people using the woodland within the pNHA. However, as most of the badger activity is nocturnal when impacts from people are at their lowest the impact is considered slight.

Despite the provision of soft landscaped areas providing suitable foraging habitat for badger, there will be an overall reduction in potential foraging and sett creating habitat through the loss of grassland and scrub. This will cause a slight negative impact to badgers.

5.9 Other Mammals

The Site contains suitable habitat for pine marten, red squirrel, and hedgehog although no evidence of either species was found during the surveys. Red foxes and rabbit were confirmed present. Consultation with Biodiversity Maps demonstrates that pine marten, red squirrel and hedgehog are well distributed across Ireland[64], including in areas close to the Site.

Rabbits and red foxes are not legally protected they are part of the biodiversity of the area and have therefore been considered to reduce potential impacts to them. Pine marten, red squirrel, and hedgehog are protected under the Wildlife Acts.

This species, if present, is likely to be limited to Fitzsimon's Woods pNHA, which will be retained in the proposed development. Pine marten are protected in Ireland by both national and international legislation. Under the Irish Wildlife Acts it is an offence, except under licence, to capture or kill a pine marten, or to destroy or disturb its resting places. Red squirrel are protected under the Wildlife Acts.

5.9.1 Potential Impacts

5.9.1.1 Construction Phase

The unmitigated removal of 0.08 ha of woodland removal could cause a limited permanent reduction of habitat for pine marten and red squirrel. The removal of grassland and limited areas of scrub may cause a reduction in foraging habitat for all of the identified mammals.

The unmitigated removal of the grassland and limited areas of scrub and woodland risks directly impacting hedgehog, which may use these habitats for foraging and refugia.

General construction activities risks directly harming mammals, such as through entrapment within open excavations.

Given the small areas of woodland to be impacted, the impacts are assessed to be negative but not significant to pine marten and red squirrel. The construction activities are assessed to pose a minor negative impact to hedgehogs, red fox and rabbits.

5.9.1.2 Operation Phase

The degradation of habitats (detailed in Section 5.2 and 5.3) will likely cause long term impacts to the species that use them, including potential red squirrel, pine marten, hedgehog, red fox and rabbits.

[64] NBDC, Ireland, Pine Marten, https://maps.biodiversityireland.ie/Species/119469 (last accessed 06 July 2023); and NBDC, Ireland, West European Hedgehog, https://maps.biodiversityireland.ie/Species/119271 (last accessed 06 July 2023).

The increase in dogs from dog walking using the pNHA and adjacent habitats, especially if allowed off-lead may impact small mammals directly if they are attacked by dogs.

These impacts are assessed to comprise a minor negative impact to these species.

5.9.2 Proposed Mitigation and Compensation Measures

Hedgehogs can be tolerant of residential urban environments and can provide foraging opportunities within vegetated gardens and grassland verges. The proposed plans include compensation planting, which will limit the overall impact to hedgehog. The constructed fence has sufficient space at the bottom to allow the movement of small mammals such as hedgehogs and foxes.

Retained habitats will be protected through a suitable buffer. This will provide protection and retained habitats for these species throughout the construction phase. Compensatory natural planting will be created within the Site and along the Site boundaries, enhancing the existing and retained scrub and woodland habitats. This will provide new foraging and refugia for this species.

The recommended Final CEMP will provide mitigation measures to be implemented during the construction phase, which will minimise potential impacts to these species. Refer to Section 5.31.1 for further details.

5.9.3 Significance of Residual Effects

Under the current development proposals and recommended mitigation and compensation measures in place it is assessed that the impacts on other mammals, including hedgehog and pine marten, will not be significant.

5.10 Invertebrates

Notable invertebrates are likely to be present on the Site due to the presence of aquatic and woodland habitats present on and adjacent to the Site.

5.10.1 Potential Impacts

5.10.1.1 Construction Phase

The proposed development will require the removal of the grassland habitat and limited areas of scrub. These habitats are considered widespread and common, with the habitats of highest value for invertebrates, comprising woodland and offsite ponds, being retained. As such, notable invertebrates are unlikely to be directly impacted. However, there will be an overall net loss of foraging habitats for invertebrates, which will cause a minor negative impact to local invertebrate.

5.10.1.2 Operation Phase

The Site may experience an increase in pesticide use within gardens, which will negatively impact local invertebrates. Conversely, vegetated gardens may provide an abundance of pollinating flora, which will provide positive impacts to local invertebrate.

The provision of a new pond to the north-east of the Site is anticipated to provide a positive impact to aquatic invertebrates.

Overall, the impacts are assessed not to be significant.

5.10.2 Proposed Mitigation and Compensation Measures

Refer to Section 5,3 for proposed mitigation on habitats, which are relevant to mitigating for potential impacts to invertebrates on the Site.

The proposed development plans (Appendix A) show that new soft landscaping areas will create additional habitats that will provide suitable foraging opportunities for common invertebrates through

the creation of gardens and open green spaces. This will compensate for the loss of existing foraging habitats on the Site required to facilitate the development through the loss of grassland and scrub.

A proposed attenuation reed pond located to the north-east of the Site will provide additional valuable aquatic habitat within the Site, which may support an increased number of notable invertebrates.

In addition, it is recommended that a soft landscaping plan is created detailing a planting list and appropriate management for the Site. Native (or ornamental species with known ecological benefits) should be used where possible, designed to attract and support invertebrates to the Site.

5.10.3 Significance of Residual Effects

Under the current development proposals and recommended mitigation and compensation measures in place it is assessed that the impacts on notable invertebrates will not be significant.

5.11 Summary Table

Table 5-5: Summary of ecological receptors, potential impacts and proposed mitigation

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
Designated sites					
Designated site – Fitzsimon's Woods pNHA	County	Potential increased recreational pressure including litter and dog walking / fouling.	General degradation of the habitats making up the pNHA.	Retained habitats will be buffered from the construction activities. Alien species will be avoided within the Site. Habitats will be enhanced with additional scrub species to reduce fire risks. Deadwood to be added into the pNHA. Signage and educational measures to decrease recreational impacts.	Not significant but potential for positive impact through actions of community groups to increase biodiversity in the woodland.
Fitzsimon's Woods and Gorse Hill					
Woodland	National	Potential increased recreational pressure including litter and dog walking / fouling.	Long-term degradation of Annex I habitat Potentially significant negative impact on a national scale.	Maintain suitable buffer and barriers. Educational materials implemented to raise awareness and promote responsible use of pNHA habitats.	Not significant but potential for positive impact through actions of community groups to increase biodiversity in the woodland.
Grassland	Local (higher value)	Potential increased recreational pressure including litter and dog walking / fouling.	Degradation of the habitat through dog fouling and increased nutrient load. Minor negative effect on a local scale.	Educational materials implemented to raise awareness and promote responsible use of pNHA habitats.	Slight Negative but potential for positive impact through actions of community groups to increase biodiversity in the woodland.
Ponds / smooth newt / common frog	County	Potential increased recreational pressure including litter and dog walking / fouling.	Potential reduction of breeding activity Reduction of terrestrial habitat.	Implementation of the Final CEMP Follow-up monitoring surveys in years 3, 5, and 10	Slight Negative

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
			Potentially significant negative impact on a county scale.	Vegetation enhancement and construction of fencing of ponds and surrounding habitat	
Habitats – on-site					
Scrub	Local (higher value)	Removal of 0.20 ha required during vegetation clearance	Minor negative effect on a local scale	Soft landscaped proposals will include new scrub areas to compensate for predicted losses.	Neutral
Grassland	Local (higher value)	Removal of 1.28 ha required during vegetation clearance	Minor negative effect on a local scale	Soft landscaped proposals will include new grassland areas to compensate for predicted losses.	Slight Negative
Recolonising bare ground	Local (higher value)	Removal of 0.42 ha required during vegetation clearance	Minor negative effect on a local scale	Soft landscaped proposals will include new vegetated habitats to compensate for predicted losses.	Positive
Woodland	National	Removal of 0.08 ha required during vegetation clearance. Potential degradation of retained habitats through increased recreational pressures.	Loss of nationally important habitat.	Maintain suitable buffer and barriers for retained habitat. Soft landscaped proposals will include tree planting on border to pNHA to compensate for predicted losses in woodland.	Not significant
Fauna					
Smooth newt	County	Potential pollution events to breeding ponds. Removal of grassland, scrub and woodland during the vegetation clearance. General construction activities harming individuals. Chance of newts falling into drainage and becoming trapped.	Pollution of breeding ponds will negatively impact the local smooth newt population. Overall reduction of suitable terrestrial habitat for smooth newts Potentially significant negative impact on a county scale.	All ponds will be buffered during the construction phase. Measures set out in the Final CEMP for general construction activities. Pre-commencement check (i.e., fingertip search) of habitats to be cleared prior to vegetation removal and the translocation of newts to suitably retained habitats if found. Follow-up monitoring survey to be undertaken at years 3, 5, and 10.	Slight Negative

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
				Amphibian ladders to be implemented into drains.	
Common frog	Local (higher value)	Potential pollution events to breeding ponds during the construction phase. Removal of grassland, scrub, and woodland during the vegetation clearance General construction activities harming individuals. Chance of newts falling into drainage and becoming trapped.	Pollution of breeding ponds will negatively impact the local common frogs. Overall reduction of suitable terrestrial habitat for common frogs Increased risk of litter and dogs entering the ponds and degrading the habitat Potentially minor negative impact on a local scale.	All ponds will be buffered during the construction phase. Measures set out in the Final CEMP for general construction activities. Pre-commencement check (i.e., fingertip search) of habitats to be cleared prior to vegetation removal and the translocation of newts to suitably retained habitats if found. Amphibian ladders to be implemented into drains.	Slight Negative
Reptiles	Local (higher value)	Removal of vegetation may harm individual reptiles as well as lead to a reduction of potential suitable habitat. Habitat degradation of woodland and scrub from recreational pressures.	Potentially minor negative impact on a local scale.	Measures set out in the Final CEMP for general construction activities. Proposed planting will compensate for lost habitats.	Not significant
Common passerine birds	Local (higher value)	Potential harm to nesting birds if vegetation removal undertaken within the nesting bird season. The vegetation removal will cause a reduction of foraging habitat Increased risk or predation by cats.	Potential direct harm to nesting birds and general loss of habitats. Potentially minor negative impact on a local scale.	Vegetation removal required inside the nesting bird season will be undertaken under the supervision of a qualified ecologist. Soft landscaping proposals will provide suitable nesting habitat. Provision of bird boxes within the proposed development and the pNHA.	Positive
Gound nesting birds	Local (higher value)	Removal of grasslands will limit the nesting and foraging	The Site will no longer be suitable for ground nesting birds.	Vegetation clearance will be undertaken outside the nesting bird season.	Not significant

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
		habitat suitable for ground nesting birds. Potential harm to nesting birds if vegetation removal undertaken within the nesting bird season. Increased risk or predation by cats.	Potentially minor negative impact on a local scale.	Any vegetation removal required inside the nesting bird season will be undertaken under the supervision of a qualified ecologist.	
Birds of prey	Local (higher value)	Removal of grasslands will cause a reduction in foraging habitat for birds of prey	No significant effect – minor temporary negative effect from the reduction of foraging habitat. Minor positive impact from increased number of small birds due to landscape planting and artificial feeding stands.	None	Neutral
Wintering birds	Local (higher value)	Removal of grassland, scrub and woodland will cause a reduction in foraging habitat for wintering birds. Increased risk or predation by cats.	No significant effect – minor negative effect from the reduction of foraging habitat	Soft landscaping proposals will include additional planting including scrub that will provide new foraging habitat	Neutral
Amber-listed birds	Local (higher value)	Potential harm to nesting birds if vegetation removal undertaken within the nesting bird season. Increased risk or predation by cats. The vegetation removal will cause a reduction of foraging habitat	Potentially significant negative impact on a local scale. Amber listed birds less likely to find benefits from gardens and feeders compared to common and widespread passerines.	Vegetation removal required inside the nesting bird season will be undertaken under the supervision of a qualified ecologist. Soft landscaping proposals will provide suitable nesting habitat along the border between the proposed development and the pNHA.	Not significant

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
Roosting bats	County	Construction phase activities will cause increased noise, vibrations, and artificial lighting that may impact roosting bats in the pNHA. Potential reduction in roosting habitat in the long-term.	Potentially minor negative impact on a county scale.	Lighting measures to consider roosting bats. Provision of bat boxes within the proposed development and the pNHA.	Neutral
Commuting and foraging bats	County	Increased noise, vibrations, and artificial lighting. Reduction in commuting and foraging habitats.	Potentially significant negative impact on a county scale.	Lighting mitigation to minimise impacts to commuting and foraging bats. New soft landscaping areas to compensate for lost habitats.	Not significant
Badger	County	Increased risk of potential persecution and sett damage. Increased number of dogs may directly harm badgers.	Potential disruption of badger breeding activity Potential reduction of badger population Overall reduction of foraging and sett building habitat. Potentially significant negative impact on a county scale.	Suitable fencing and buffers on existing setts. Measures set out in the Final CEMP for general construction activities. Monitoring surveys of known setts during construction. Follow-up surveys in years 3, 5, and 10. Scrub planting to buffer setts from the proposed development.	Slight Negative
Red squirrel	Local (higher value)	General construction activities harming individuals. Reduction in suitable habitat. Potential habitat degradation in the pNHA	Minor negative impact on a local scale.	Measures set out in the Final CEMP for general construction activities. Compensatory planting within the soft landscaping proposals.	Not significant
Pine marten	Local (higher value)	General construction activities harming individuals. Reduction in suitable habitat. Potential habitat degradation in the pNHA	Minor negative impact on a local scale.	Measures set out in the Final CEMP for general construction activities. Compensatory planting within the soft landscaping proposals.	Not significant

Ecological receptor	Evaluation	Impact	Potential effect	Proposed mitigation / enhancement	Residual effects
Red fox	Local (lower value)	General construction activities harming individuals. Reduction in suitable habitat. Potential habitat degradation in the pNHA.	Minor negative impact on a local scale.	Measures set out in the Final CEMP for general construction activities.	Not significant
Invertebrates	Local (higher value)	General construction activities harming individuals. Reduction in suitable habitat. Potential habitat degradation in the pNHA.	Potentially minor negative impact on a local scale.	Measures set out in the Final CEMP for general construction activities.	Not significant

5.12 Construction Environment Management Plan

A preliminary Construction Environment and Management Plan (CEMP) has been produced and should be adhered to during the construction phase. This plan will detail protectional measures for retained trees and habitats, including suitable buffer zones for root protection areas. A detailed Final Construction and Environment Management Plan (CEMP) will be submitted for agreement with the planning authority at least 5 weeks prior to the commencement of the proposed development including enabling works.

The final CEMP should include (but not be limited to) the following measures:

- A designated receptor site will be identified within offsite, retained habitat. This area will be located close to the breeding ponds and will include grassland and scrub habitat.
- If individual newts or frogs are discovered during the construction phase, they will be moved and positioned into similar suitable vegetation within the receptor site (i.e., similar to that the newt / frog was found in).
- A suitable buffer of 30 m will be maintained from the offsite breeding ponds.
- Generic mitigation measures will be implemented throughout the development ensuring that no direct or indirect impacts on any of the offsite ponds will occur. (e.g., appropriate dust suppression measures and pollution protocols will be detailed and adhered to).
- All drains are to be capped or covered to prevent amphibians falling inside and becoming trapped.
- All waste is to be stored in skips and all new materials will be stacked neatly onto pallets to avoid the unintentional creation of refugia habitats.
- All pipes with a diameter greater than 300 mm will be capped overnight to avoid accidentally entrapping badgers inside;
- All excavations will be covered overnight or provided an earth ramp on at least one site, to avoid accidentally entrapping badgers inside;
- No new spoil piles will be created or left for any prolonged period of time to minimise the risk of new setts being created;
- Any necessary spoil piles will be compacted using heavy machinery and covered, where possible to minimise the risk of it being used for sett creation; and
- Regular badger sett monitoring will be implemented through the use of camera traps throughout the construction phase to monitor the badger sett activity and maintain that disturbance remains within acceptable levels. This will be conducted by a competent ecologist.

The final CEMP will also include site specific details, drawings and specifications of the measures to protect biodiversity, as outlined in this report, and with reference to other relevant planning documents. These will be outlined in a Biodiversity Section of the CEMP and will require input from a suitably qualified ecologist for biodiversity and an invasive species specialist.

5.12.1 Project Ecologist and Ecological Clerk of Works (EcOW)

Prior to the commencement of development, the developer shall engage the services of a qualified Ecologist as an ecological consultant from the commencement of construction and for the duration of the monitoring requirements as set out in the Ecological Impact Assessment, CEMP and planning Application documents. The contractor shall inform the Planning Authority in writing of the appointment and name of the consultant, prior to the commencement of development. The consultant shall ensure the implementation of all of the mitigation measures and recommendations in the submitted planning documents.

5.13 Cumulative Effects

Table 5-6 details other granted and live applications in close proximity of the Site. These have been considered to assess the potential cumulative effects of the proposed development. Minor applications (i.e., extensions and alterations) have not been considered.

Table 5-6: Other large granted and live applications close to the Site

Application reference number	Details	Ecology report details
D17A/1003[65]	This application was granted permission in 2018 and comprised the following: Permission for a residential development consisting of the demolition of the existing dwelling house and sheds and the construction of 67 no. apartments in 3 no. three storey plus penthouse blocks (Blocks A, B & C) containing in total 5 no. one bed units, 48 no. two bed units and 14 no. three bed units. The development will also include a basement (under blocks B & C), on surface car parking, the construction of a new site entrance from the public road and all associated site and landscaping works on a 1.09 hectare site.	The site was of evaluated as being of high local value due to a population of breeding frogs and bat roosting recorded in the building. Mitigation included the creation of a new pond to compensate for lost amphibian breeding habitat and the provision of bat boxes to compensate for the loss of bat roosting sites. This mitigation was considered to reduce impacts on flora and fauna although there will be losses of biodiversity within the site.

[65] Wilson F. (2017) Ecological Consultant Ecological Impact Assessment for a proposed residential development at Whinsfield, Sandyford Road, Sandyford Dublin 18. (Last accessed September 2024).

Application reference number	Details	Ecology report details
ABP31332122[66]	This application is still live and comprises the following: Permission for Strategic Housing Development consists of demolition of the existing, derelict, former residential structures on the site and construction of 101no. residential units and a creche (13,127 sq m gross floor area in total). The residential element comprises a mix of houses (9no. 2-beds, 16no. 3beds, 6no. 4 beds and 1 no. 5 beds); duplexes (3no. 2 beds and 10no. 3 beds) and apartments (14no. 1 beds, 35no. 2 beds and 7no. 3 beds). The houses are provided in 2 storey terraces and include one dormer-style unit. The duplexes and apartments are provided in 2no. blocks (A and B) connected by a landscaped podium with undercroft car parking level (including plant/ stores). Block A is 3-4 storey in height and contains 52no. apartments. It has frontage to Blackglen Road. Block B is to the rear and contains 13no. duplexes and 4no. apartments. It is 3-4 storeys in height. All houses are provided with private rear gardens and all apartments and duplexes are provided with private terraces or balconies. The creche (109.6 sq. m) is located in Block B and includes a dedicated open space of 120 sq m. The development includes 2no. ESB Substations (c. 16 sq. m each) and bin stores (c. 22.5 sq. m). The roof of Block A includes a green sedum roof and photovoltaic panels. Public open space is provided in 3no. separate areas, with a total of 3,559 sq. m provided. 1,458 sq.m of semi-private communal open space is provided at podium level between Blocks A and B. Road infrastructure works proposed on site to include new internal access road, cycle and pedestrian facilities. 1no. new vehicular access to the scheme from Blackglen Road (currently subject of improvement works) with dedicated pedestrian and cycle access, 2no. additional, dedicated pedestrian accesses to the site from Blackglen Rd and 1no. new pedestrian and cycle access to the site from Slate Cabin Lane. 170no. car parking spaces, including: 83no. spaces at undercroft level and the remaining 87no. spaces at surface level. 5no. motorcycle spaces are provided at undercroft level. 152no. bicycle parking spaces are provided, of which 126no. are provided within the undercroft (includes 2no. cargo cycle spaces). The remaining 26no. spaces are provided at surface level in a covered cycle store. And, all associated and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works, including drainage and SUDS infrastructure. The application contains a statement setting out how the proposal is consistent with the objectives of the Dún Laoghaire - Rathdown County Development Plan 2016 – 2022 (currently in force) and the Dún Laoghaire - Rathdown County Development Plan 2022 – 2028 (adopted, not yet in force).	The EclA evaluated the following potential ecological impacts from the proposed development: • Habitat loss of scrub, hedgerow, treeline and drainage ditch. • Mortality to animals during construction. • Potential impacts to bats including a potential loss of roosting site. • Pollution of water. • Potential spread of Himalayan balsam. • Disturbance of other protected species. Mitigation measures included a sensitive lighting scheme, avoidance of impacts to nesting birds, compensation bat boxes and proposed planting. With the implementation of mitigation impacts were considered to lead to minor negative effects and the impacts to bats was considered negligible.

[66] Fogarty P., (2022) Ecological Impact Assessment of proposed Strategic Housing Development Blackglen Road, Sandyford, Dublin 18. (Last accessed September 2024).

The cumulative impacts of the proposed development in combination with the two developments listed in Table 5-6 would lead to increased habitat losses, which could potentially disrupt ecological corridors and lead to an overall reduction in biodiversity in the local area. This could have significant impacts on local fauna, including notable species confirmed on the Site, such as bats, badgers, amphibians and amber-listed birds. Existing species would be required to survive in a reduced area.

Furthermore, these two applications, located in close proximity to the Site will add an additional 168 residential dwellings to the area. In combination with this proposed development to add 129 dwelling, totalling 378 new dwelling in combination. Assuming at least two residents per property, this would lead to an increase in the number of residents if all three developments went ahead. This would lead to a potentially significant increase in recreational pressure on Fitzsimon's Woods pNHA when considered in combination.

It should be noted that the Site is located along a busy main road within Dublin, with existing developments within close proximity on all aspects. Therefore, existing wildlife corridors are already limited through these developments. The proposed development will mainly be restricted to grasslands and bare ground, which is allocated for residential development and may be used by dog walkers. The plans provide compensatory planting, which would help to mitigate and compensate for habitat losses required to facilitate the proposed development.

As such, the effects of the developments in combination may lead to significant effects to the Fitzsimon's Woods pNHA, badgers, bats, amphibians and amber listed birds.

6.0 Conclusion

The proposed development will require the removal of mostly dry meadow and grassy verges and bare ground with very limited areas of scrub and mixed broadleaved removal also necessary.

No Annex I habitats will be impacted directly impacted by the proposed development. However, the adjacent Fitzsimons Woods pNHA and its associated habitats may be indirectly impacted through increased recreation use from the increased number of residents and their pets. Impacts on the Woods can be reduced by the provision of a constructed fence along the northern boundary of the Site which will keep walkers to assigned pathways. Residents should be educated on the value of the woods and encouraged to join local community groups involved in the use of the woods and enhancement of its biodiversity.

It is evaluated that the proposed development will result in mostly negative but not significant impacts on local ecology. Of most significance is the protection and maintenance of the badger sett to the north of the Site. The proposed development layout has been adjusted so it is sufficiently distant from the sett, and a permanent fence has been erected to protect the sett from construction and operational impacts. Additional planting of native scrub around the sett will also add protection and avoid excessive disturbance. The badger activity in the sett will be monitored during the first 3, 5, and 10 years of operation to monitor that badgers are still using the setts and have not been significantly impacted by the proposed development.

The ponds containing smooth newt population to the east of the Site will not be directly affected by the construction or operation of the development. The permanent fence and maintenance of vegetation and terrestrial habitats around the ponds will give some protection to the newt population. The newts will be monitored during the first 3, 5, and 10 years of operation to monitor the number of newts using the ponds and ensure they have not been significantly impacted by the proposed development. The maintenance and management of the ponds will also benefit the local frog population.

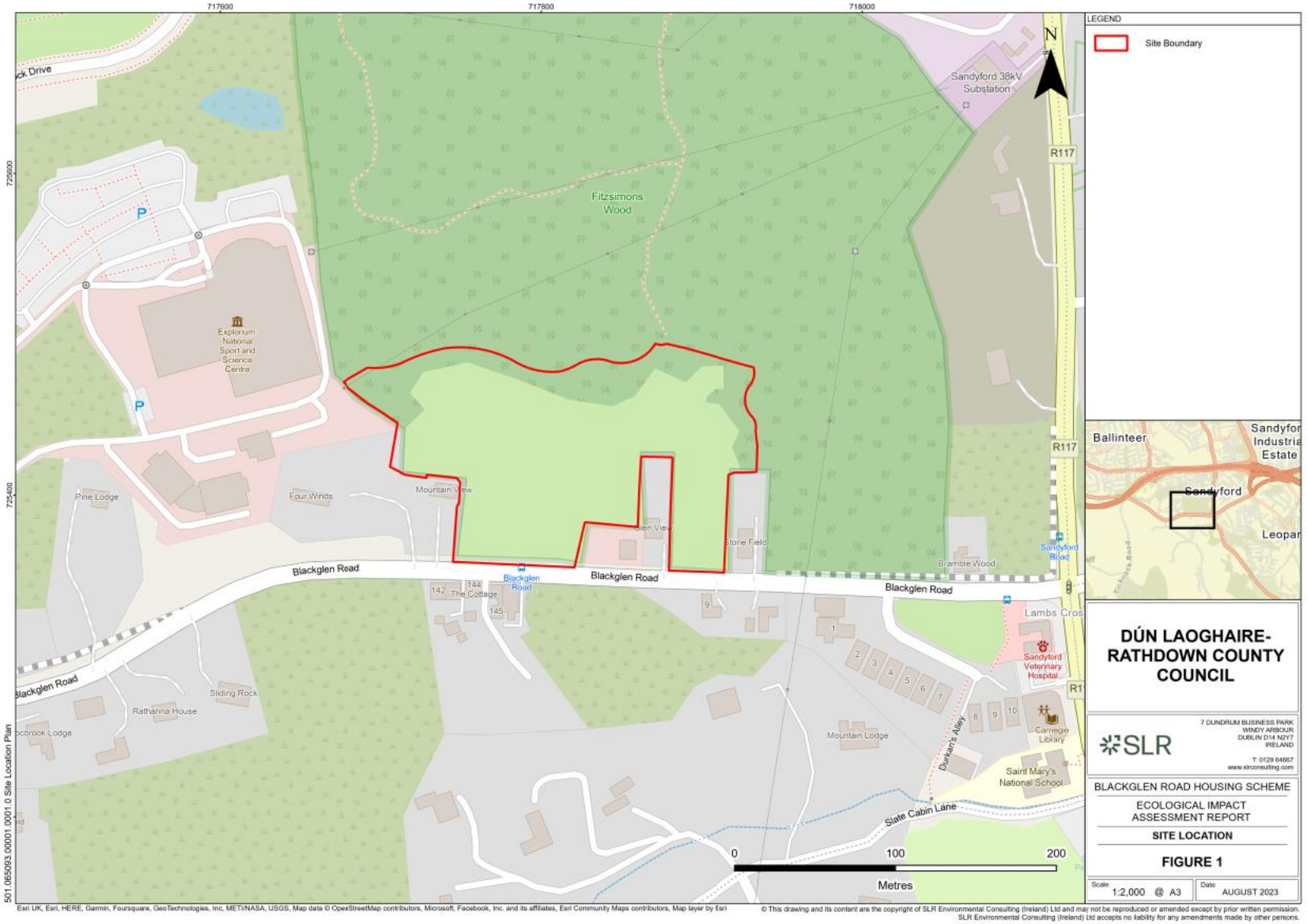
The loss of the grassland will impact the common bird species found on Site but this is considered temporary as additional planting and landscaping will provide bird species with replacement foraging habitats. Erection of bird boxes will provide additional nesting habitats.

Some foraging habitats for bats will be lost and the street lighting will have an impact on foraging bats. Bat-friendly lighting as recommended in the BCT Guidance Note 08/23 will be used to reduce lighting impacts on the local bat population. The extent of the proposed development is relatively small and there will be sufficient other foraging habitats in the surrounding area.

It is assessed that the unmitigated works may impact valuable habitats and the fauna that use them, however, the recommended mitigation measures will minimise the predicted impacts to the local ecology. Provided that the proposed works are undertaken in accordance with the proposed design and best practice that is described within this report, significant effects on ecology will be limited.

Figures

Figure 1: Site Location Plan



SLR

Figure 2: Habitat plan

SLR

Figure 3: Bird Survey Area and Transect Route

Figure 4.1: Breeding Bird Survey 1 Results 13.06.2023

Figure 4.2: Breeding Bird Survey 2 Results 20.06.2023

SLR

Figure 4.3: Breeding Bird Survey 3 Results 30.06.2023

Figure 4.4: Breeding Bird Survey Results 06.07.2023

SLR

Figure 5: Bird potential territories

Figure 6: Bat static detector location

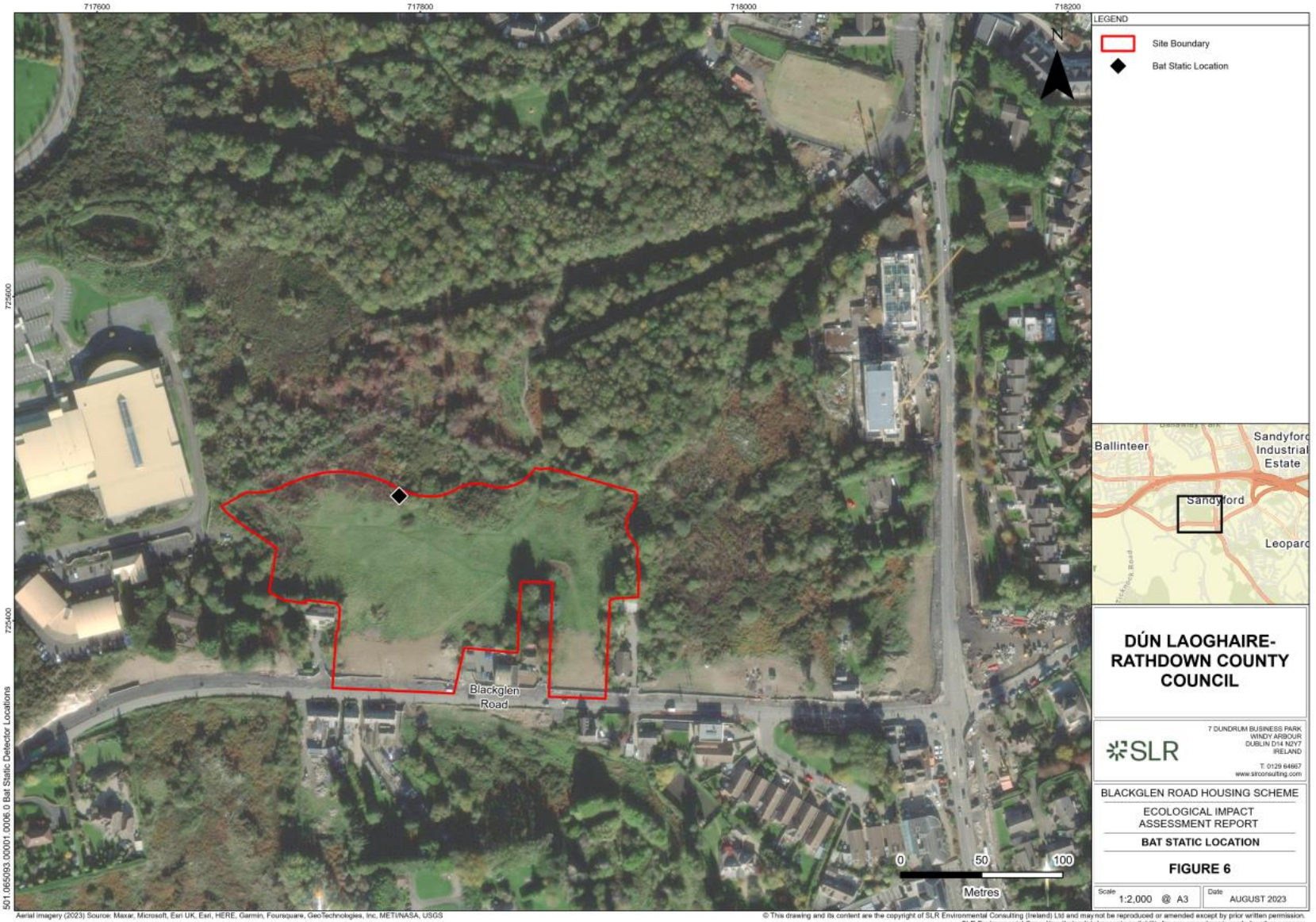


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Figure 7: Pond location plan

SLR

Appendix A Proposed development plans


Pedestrian Entrance
New wall as required
Nature walk to Fitzsimon Wood
Existing Gorse
Glen View
Blackglen Road
142
143
144
145
146
BLOCK D
BLOCK E
BLOCK F
BLOCK G
BLOCK H
BLOCK J
BLOCK C
BGR-F-ZZ-DR-A-0005
JFOC

Appendix B Relevant Legislation and Planning Policy

B.1 EIA Directive 2014/52/EU

The EIA Directive, Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment as amended by Council Directive 97/11/EC of 3 March 1997, Directive 2003/35/EC of 26 May 2003 and Directive 2009/31/EC of 23 April 2009, now codified in Directive 2011/92/EU of 13 December 2011 and amended in Directive 2014/52/EU of 16 April 2014, is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to project consent being given.

The EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Project) Act, 1963 (and other legislation) to provide for environmental impact assessment. The European Union (Planning and Project) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of Directive 2014/52/EU, Amending previous Directive 2011/52/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into Irish planning law.

B.2 Habitats and Birds Directive

The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora was adopted in 1992 and aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging projects. The Natura 2000 network of protected areas is known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). In general terms, they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community. The requirements of the Habitats Directive have been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 477/2011]. This legislation affords protection to both Special Protection Areas and Special Areas of Conservation. Special Areas of Conservation (SAC) are designated under the Conservation of Natural Habitats and of Wild Fauna and Flora Directive 92/43/EEC (Habitats Directive) which is transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). Special Protection Areas (SPA) are classified under the Birds Directive (2009/147/EC on the Conservation of Wild Birds). Article 6(3) of the Habitats Directive requires an 'appropriate assessment' to be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An 'appropriate assessment' is an evaluation of the potential impacts of a plan or project on the integrity of a Natura 2000 site, and the incorporation, where necessary, of measures to mitigate or avoid negative effects.

B.3 National Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts 1976 to 2018 and the Floral (Protection) Order 2015. Natural Heritage Areas (NHA) are areas that are considered to be important for the habitats present or for the species of plants and animals supported by those habitats. Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they were formally proposed for designation. Section 19(1) of the Act states that 'Where there is a subsisting natural heritage area order in respect of any land, no person shall carry out, or cause or permit to be carried out, on that land any works specified in the order or any works which are

liable to destroy or to significantly alter, damage or interfere with the features by reason of which the designation order was made'. In addition, a list of proposed NHAs (pNHAs) was published in 1995 but to date these have not had their status confirmed. Prior to statutory designation, pNHAs are subject to limited protection under various agri-environment and forestry schemes and under local authority planning strategies such as County Project Plans.

B.4 Relevant Planning Policy

The planning policy and legislation that is relevant to the proposed project is set out in the following section.

B.4.1 Dún Laoghaire-Rathdown County Development Plan 2022-2028

Planning policy at the local level is provided by the Dún Laoghaire-Rathdown County Development Plan 2022-2028 came into effect on 21st April 2022. This plan contains a number of policies relevant to ecology and nature conservation that are summarised in Table 6-1.

Table 6-1: Biodiversity policies within the DLR County Development Plan 2022 - 2029

Policy Reference	Policy
GIB2	It is a Policy Objective to continue to protect, manage and plan to conserve, maintain or enhance the distinctive characteristics of the County's landscapes, townscapes and seascapes in accordance with the recommended strategies as originally outlined in the Landscape Character Assessment (2002 and since updated), in accordance with the 'Draft Guidelines for Landscape and Landscape Assessment' (2000) as issued by the Department of Environment and Local Government, in accordance with the European Landscape Convention (Florence Convention) and in accordance with 'A National Landscape Strategy for Ireland – 2015-2025'. The Council shall implement any relevant recommendations contained in the Department of Arts, Heritage, and the Gaeltacht's National Landscape Strategy for Ireland, 2015 – 2025.
GIB18	It is a Policy Objective to protect and conserve the environment including, in particular, the natural heritage of the County and to conserve and manage Nationally and Internationally important and EU designated sites - such as Special Protection Areas (SPAs), Special Areas of Conservations (SACs), proposed Natural Heritage Areas (pNHAs) and Ramsar sites (wetlands) - as well as non-designated areas of high nature conservation value known as locally important areas which also serve as 'Stepping Stones' for the purposes of Article 10 of the Habitats Directive.
GIB19	It is a Policy Objective to ensure the protection of natural heritage and biodiversity, including European Sites that form part of the Natura 2000 network, in accordance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines.
GIB20	It is a Policy Objective to support the provisions of the forthcoming DLR County Biodiversity Action Plan, 2021 – 2026.
GIB21	It is a Policy Objective to protect and preserve areas designated as proposed Natural Heritage Areas, Special Areas of Conservation, and Special Protection Areas. It is Council policy to promote the maintenance and as appropriate, delivery of 'favourable' conservation status of habitats and species within these areas.
GIB22	It is a Policy Objective to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance - including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, Flora (Protection) Order, 2015, Annex I habitats, local important areas, wildlife corridors and rare species - are adequately protected.

Policy Reference	Policy
	Ecological assessments will be carried out for all developments in areas that support, or have potential to support, features of biodiversity importance or rare and protected species and appropriate mitigation/ avoidance measures will be implemented. In implementing this policy, regard shall be had to the Ecological Network, including the forthcoming DLR Wildlife Corridor Plan, and the recommendations and objectives of the Green City Guidelines (2008) and 'Ecological Guidance Notes for Local Authorities and Developers' (Dún Laoghaire-Rathdown Version 2014).
GIB23	It is a Policy Objective to protect the Ecological Network which will be integrated into the updated Green Infrastructure Strategy and will align with the DLR County Biodiversity Action Plan. Creating this network throughout the County will also improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive. The network will also include non-designated sites.
GIB24	It is a Policy Objective to maintain and protect the natural character and ecological value of the river and stream corridors in the County and where possible to enhance existing channels and to encourage diversity of habitat and nature-based solutions that incorporate biodiversity features. It is also policy (subject to the sensitivity of the riverside habitat), to provide public access to riparian corridors, to promote improved passive recreational activities.
GIB25	It is a Policy Objective to retain and protect hedgerows in the County from development, which would impact adversely upon them. The Council will promote the County's hedgerows by increasing coverage, where possible, using locally native species and to develop an appropriate code of practice for road hedgerow maintenance.
GIB25	It is a Policy Objective to protect, promote and preserve sites of Geological and Geomorphological importance, in particular the proposed Natural Heritage Areas (NHAs), and any County Geological Sites (CGS), that become designated during the lifetime of the Plan.
GIB28	It is a Policy Objective to prepare an 'Invasive Alien Species Action Plan' for the County which will include actions in relation to Invasive Alien Species (IAS) surveys, management and treatment and to also ensure that proposals for development do not lead to the spread or introduction of invasive species. If developments are proposed on sites where invasive species are or were previously present, the applicants will be required to submit a control and management program for the particular invasive species as part of the planning process and to comply with the provisions of the European Communities Birds and Habitats Regulations 2011 (S.I. 477/2011).
GIB29	It is a Policy Objective to increase the use of Nature Based Solutions (NBS) within the County, and to promote and apply adaption and mitigation actions that favour NBS, which can have multiple benefits to the environment and communities. NBS has a role not only to meet certain infrastructure related needs (e.g., flooding management), and development needs, but also to maintain or benefit the quality of ecosystems, habitats, and species.

B.4.2 Dún Laoghaire-Rathdown Biodiversity Action Plan 2021-2025

The DLR Biodiversity Plan (2021 – 2025) will set out how we understand, manage, connect, and collaborate to protect and enhance the variety of plant and animal life in DLR over the next five years.

The new DLR Biodiversity Action Plan 2021-2025, the second Plan for the County, builds on the aims of the first Plan and continues to move us towards our overall EU and National Vision for Biodiversity. It is Government policy for the Local Authorities to take the lead role in the production of Local Biodiversity Action Plans. This Plan demonstrates DLR's continuing commitment to achieving our obligations to protect our biodiversity for the benefit of future generations. This is achieved through a series of targeted actions provided in this Plan. The biodiversity objectives are within the DLR Biodiversity Action Plan 2021 – 2025 are detailed in Table 6-2.

Table 6-2: Themes and objectives of the DLR Biodiversity Action Plan 2021 - 2025

Policy Reference	Details	Objectives
Theme 1: Reaching a deeper understanding of out county's biodiversity	Theme 1 includes actions that aim to collect data about our county's biodiversity. This includes habitat and species surveys, identifying important biodiversity areas, and also identifying those areas most vulnerable to climate change.	Objective 1 - Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity.
Theme 2: Making good decisions for biodiversity	Theme 2 includes actions that involve placing biodiversity into our decision-making and management processes. Actions include developing guidance and tools for our staff and decision-makers, along with inputting to other plans such as the County Development Plan, Climate Change Action Plan, and others	Objective 2 - Mainstream biodiversity into decision making and improve the management of this valuable resource.
Theme 3: Powerful actions to protect biodiversity and us	Theme 3 includes actions to strengthen our understanding of natural capital and ecosystem services, to work with communities to identify opportunities where ecosystems can be restored and enhanced including terrestrial, river, coastal and marine ecosystems, to develop and implement appropriate rewilding projects in DLR and extend our local biodiversity areas within DLR and to protect, restore and expand our County Ecological Network and DLR'S Green Infrastructure.	Objective 3 - Conserve and restore biodiversity and ecosystems and support ecosystem services in DLR, including coastal and marine.
Theme 4: Connecting people and nature and inspire a positive future	Theme 4 includes actions to raise awareness of biodiversity and ecosystem services; to provide education and training to the public, local communities, and our staff; to organise events and activities to promote biodiversity; and to work with our local communities on biodiversity projects.	Objective 4 - increased awareness, training and appreciation of biodiversity, ecosystems, and ecosystem services.
Theme 5: Strength in working together	Theme 5 includes actions to engage with local communities and business communities to develop local biodiversity projects, to work with our Biosphere partners, universities, government departments, other local authorities, and organisations on biodiversity projects and to share our resources.	Objective 5 Strengthen the effectiveness of collaboration between all stakeholders for the conservation of biodiversity, including with Local Authority Biodiversity Officers, Local Authority Waters Programme (LAWPRO), the National Biodiversity Data Centre, BirdWatch Ireland, NPWS and other State Bodies.

B.4.3 Regional Spatial and Economic Strategy (Eastern and Midland Regional Assembly)

The eastern seaboard has more than 270km of coastline from Carlingford Lough, the UNESCO Dublin Bay biosphere, and the Wicklow Mountains to Kilmichael Point.

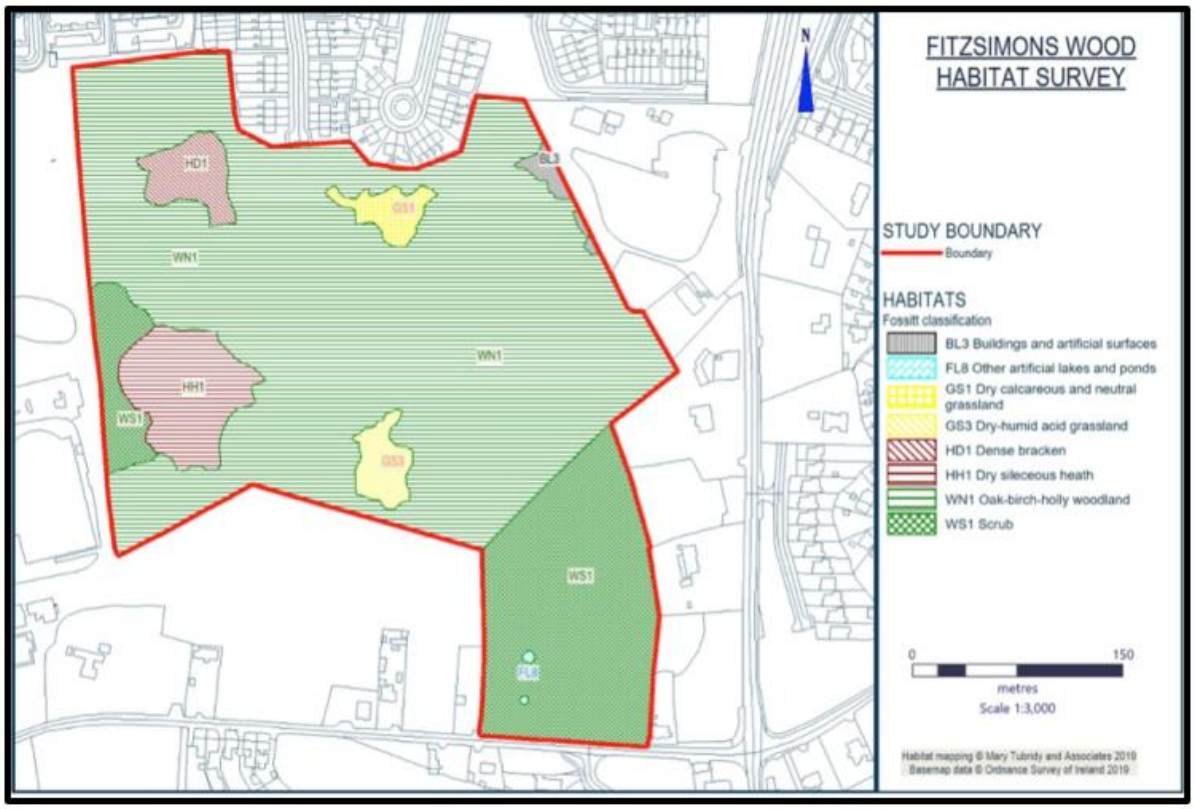
We have a wide range of Natura 2000 sites, such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) Ramsar wetlands and protected bogs and peatlands.

Important coastal zones include Dublin Bay, Dundalk Bay, and Carlingford Lough. There are with a number of strategic rivers that include the Boyne Valley, the Liffey Valley, and the River Shannon, which offer huge potential for the development of water-based tourism.

Green infrastructure (GI) is the management of our built and natural landscape features in a way that integrates and enhances multi-functional benefits for man and nature including- biodiversity and habitat provision, drainage and flood control, recreation and travel, environmental regulation, food production and local economic and community development. The region has a very wide range of habitat and landscape types which support a diverse range of species in natural, semi-natural and managed sites within relatively close proximate to urban areas.

Ireland has a commitment to halt Biodiversity loss by 2020, It is important to preserve and connect a wide variety of habitats across the region, in particular in the face of threats such as global climate change and invasive alien species. Habitat fragmentation is a major issue in the region, there is a need to develop a strategy to enhance connectivity and develop corridors between areas. There is an opportunity in the formulation of the RSES to introduce a region wide green infrastructure framework to support and deliver green infrastructure strategies and deliver the principles of green infrastructure at a county and settlement level.

Appendix C Fitzsimon's Woods pNHA Habitat Map (from M Tubridy 2001)


FITZSIMONS WOOD
HABITAT SURVEY
N
HD1
BL3
GS1
WN1
WN1
HH1
WS1
GS3
WS1
FL8
STUDY BOUNDARY
Boundary
HABITATS
Fossitt classification
BL3 Buildings and artificial surfaces
FL8 Other artificial lakes and ponds
GS1 Dry calcareous and neutral grassland
GS3 Dry-humid acid grassland
HD1 Dense bracken
HH1 Dry sileceous heath
WN1 Oak-birch-holly woodland
WS1 Scrub
0
150
metres
Scale 1:3,000
Habitat mapping © Mary Tubridy and Associates 2019
Basemap data © Ordnance Survey of Ireland 2019

Appendix D Site Photographs

Plate 6-1: Badger sett 1 entrance

Plate 6-2: Badger sett 1 entrance

Plate 6-3: Badger sett 1 entrance

Plate 6-4: Badger sett 1 entrance

Plate 6-5: Badger sett 2 entrance

Plate 6-6:Badger sett 2 entrance

Plate 6-7: Fresh digging outise sett 2

Plate 6-8: Badger sett 2 entrance

Plate 6-9: Badger sett 2 entrance

Plate 6-10: Badger sett 2 entrance

Plate 6-11: Disused badger sett 3 entrance

Plate 6-12: Disused badger sett 3 entrance

Plate 6-13: Disused badger sett 3 entrance

Plate 6-14: Disused badger sett 3 entrance

Plate 6-15: Disused badger sett 4 entrance with old spoil

Plate 6-16: Disused badger sett 4 entrance with old spoil

Plate 6-17: Ponds used for breeding newts

Plate 6-18: Ponds used for breeding newts

Plate 6-19: Ponds used for breeding newts

Plate 6-20: Ponds used for breeding newts

Plate 6-21: Ponds used for breeding newts

Plate 6-22: Ponds used for breeding newts

Plate 6-23: Ponds used for breeding newts

Plate 6-24: Ponds used for breeding newts

Appendix E Newt Survey Results[67]

E.1 Survey 1 - 04.05.2023

Survey no.	Pond 1		Pond 2		Pond 3		Pond 4		Pond 5		Pond 6		Pond 7		Pond 8	
	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog
1	0	0	0	1 U, A	0	0	0	0	0	0	1 F, A	0	0	0	0	1 U, A

E.2 Survey 2 - 24.05.2023

Survey no.	Pond 1		Pond 2		Pond 3		Pond 4		Pond 5		Pond 6		Pond 7		Pond 8	
	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog
2	0	0	0	0	0	0	1 M, A 2 F, A	0	3 M, A	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

E.3 Newt Survey Results Total

Survey no.	Pond 1		Pond 2		Pond 3		Pond 4		Pond 5		Pond 6		Pond 7		Pond 8	
	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog	Smooth newt	Common frog
Total	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

[67] (M = Male; F = Female; U = Unknown; A = Adult; J = Juv)

Appendix F Breeding Bird Survey Raw Data

F.1 Breeding Bird Survey Results – 13.06.2023

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
HC	2	53.26591	-6.23497	Calling Nest	Perched in tree	-
WW	1	53.26668	-6.23536	Singing	-	-
WP	2	53.2669	-6.23511	-	Perched on overhead wires	-
WW	1	53.26697	-6.23422	Singing	-	-
R.	1	53.26663	-6.23454	Calling	-	-
BC	>3	53.26659	-6.23425	Family	2x female or juveniles noted	-
MG	2	53.26592	-6.23307	Foraging	-	-
HC	1	53.2658	-6.23323	Nest	Heard in tree, potential juvenile heard calling	-
HG	1	53.26584	-6.23372	-	Flyover	West
MG	2	53.26591	-6.23231	-	-	-
CH	1	53.26581	-6.23228	Singing	-	-
GT	1	53.2659	-6.23205	Singing	-	-
R.	1	53.26617	-6.23201	Calling	-	-
ST	1	53.26623	-6.23195	Singing	-	-
LT	5	53.26655	-6.23243	Family Foraging	-	-
JD	1	53.2664	-6.23275	-	-	South
RN	1	53.26633	-6.23242	-	-	North-east
CH	1	53.26624	-6.23139	Singing	Perched on pole	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
WP	1	53.26659	-6.232	Singing	-	-
WR	1	53.26673	-6.23305	Singing	-	-
WR	1	53.26686	-6.23277	Singing	-	-
CH	1	53.2671	-6.23354	Singing	-	-
CC	1	53.26743	-6.23308	Singing	-	-
BT	>4	53.2673	-6.23359	Family Foraging	-	-
B.	1	53.26723	-6.23299	-	-	-
WR	1	53.26687	-6.23153	Singing	-	-
GF	1	53.26711	-6.23239	Calling	Flyover	South-east
J.	1	53.26745	-6.2329	-	Perched	-
WP	1	53.26743	-6.23299	-	Perched	-
SG	2	53.26735	-6.23295	-	-	North-east
BT	2	53.26751	-6.23293	Foraging	Juveniles noted	-
WR	1	53.26747	-6.23271	Singing	-	-
D.	1	53.26776	-6.2328	Singing	-	-
JD	>2	53.26809	-6.2329	Calling	Possible nests	-
CC	1	53.2683	-6.23264	Singing	-	-
WP	1	53.26885	-6.23274	-	Perched on pole	-
SG	6	53.26887	-6.23412	-	Flyover	South-west
BT	4	53.26889	-6.23262	Family	-	-
WR	1	53.26893	-6.23271	Singing	-	-
B.	1	53.26882	-6.23289	-	-	-
WR	1	53.26874	-6.2322	Singing	-	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
GT	1	53.26885	-6.23203	Singing	-	-
MG	1	53.26896	-6.23187	-	Perched	-
D.	1	53.26885	-6.23192	-	-	-
GF	1	53.26904	-6.23182	-	Flyover	-
B.	1	53.2692	-6.23198	-	-	-
B.	1	53.26918	-6.23383	-	-	-
B.	1	53.26894	-6.23369	-	-	-
BT	3	53.26886	-6.23373	Family Foraging	Possible repeat recording	-
MG	2	53.26896	-6.23407	Calling Nest	Alarm calling indicates possible nest	-
BT	1	53.26896	-6.2341	Foraging	-	-
BT	2	53.26896	-6.23488	Foraging	-	-
D.	1	53.26888	-6.23478	Singing	-	-
WP	1	53.26869	-6.23513	-	Perched	-
WR	1	53.26866	-6.23542	Singing	-	-
GT	>4	53.26892	-6.2355	Family Foraging Feeding juvenile	-	-
GT	1	53.26853	-6.23582	Singing	-	-
R.	1	53.26838	-6.23572	Calling	-	-
J.	1	53.26832	-6.23609	Foraging	-	-
WP	2	53.2683	-6.23604	-	-	-
WR	1	53.26797	-6.23526	Singing	-	-
B.	1	53.26757	-6.23594	-	-	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
WR	1	53.26712	-6.2355	Singing	-	-
B.	1	53.26742	-6.23555	Foraging	-	-
D.	1	53.26731	-6.23563	Singing	Perched	-
B.	1	53.26732	-6.23566	-	Perched	-
GT	2	53.26715	-6.23532	-	Pair	-
GT	1	53.26733	-6.23563	Foraging	-	-
BT	2	53.26724	-6.2359	Foraging	-	-
WW	1	53.2671	-6.23503	Singing	Possible repeat recording	-
SG	3	53.26738	-6.23494	Flyover	-	South-west
JD	2	53.26743	-6.23504	Flyover	-	West
RN	2	53.26725	-6.23621	Calling	1x on pylon, 1x flying circling	Circling
BF	1	53.26729	-6.23473	-	Perched	-
CT	2	53.26766	-6.23375	Foraging	-	-
CC	1	53.26743	-6.23353	Singing	-	-
B.	1	53.26779	-6.23353	-	-	-
CC	1	53.26768	-6.2332	Foraging	-	-

F.2 Breeding Bird Survey Results – 20.06.2023

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
GC	1	53.26592	-6.2331	Singing	-	-
WR	1	53.26582	-6.23299	Singing	-	-
WR	1	53.26615	-6.23203	Singing	-	-
BT	1	53.26598	-6.23217	Calling	-	-
WP	1	53.26658	-6.23208	Calling	-	-
WW	1	53.26626	-6.23131	Singing	-	-
GO	1	53.2666	-6.23279	Flyover		North
GT	>2	53.26692	-6.23322	Family	Fledglings	-
WR	1	53.26681	-6.2333	Singing	-	-
WW	1	53.26681	-6.2334	Singing	-	-
WR	1	53.26678	-6.23271	Singing	-	-
B.	1	53.26691	-6.23341	-	-	-
BT	2	53.26709	-6.23343	Calling	-	-
B	2	53.26698	-6.23327	-	Pair	-
ST	1	53.26664	-6.23238	Singing	-	-
CC	1	53.26735	-6.23317	Singing	-	-
WP	2	53.26715	-6.23243	Singing	-	-
B	1	53.26702	-6.23212	Calling	Alarm call	-
JD	2	53.26695	-6.23203	Flyover	-	North-east
WW	1	53.26675	-6.23158	Singing	Possible repeat recording	-
R.	1	53.26746	-6.23289	-	-	-
GC	1	53.26739	-6.23304	Singing	-	-
WR	1	53.26758	-6.23255	Singing	-	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
JD	1	53.26814	-6.23208	Calling	-	-
CC	1	53.26768	-6.23234	Singing	-	-
MG	1	53.26898	-6.23266	-	-	-
CC	1	53.26846	-6.23304	Singing	-	-
JD	8	53.2686	-6.23295	Flyover	-	South-west
LT	2	53.26893	-6.23278	Foraging	Perched on wire before Moving East Possible pair	East
B.	1	53.26881	-6.23231	-	-	-
WR	1	53.26902	-6.23242	Singing	-	-
R.	1	53.26894	-6.2323	-	-	-
B.	1	53.26925	-6.23194	-	-	-
WP	1	53.26902	-6.23179	-	Perched on wire	-
BT	1	53.26892	-6.23244	Calling	-	-
GO	1	53.2689	-6.23342	Singing	-	-
BC	2	53.26888	-6.23369	Foraging	Pair	-
SG	2	53.26876	-6.23367	Flyover	-	South
CH	1	53.26897	-6.23477	Singing	-	-
WP	2	53.26868	-6.23498	Singing	1 singing 1 flew as flushed	-
HG	1	53.26883	-6.23551	Flyover	-	North-east
WR	1	53.26875	-6.23558	Singing	-	-
WP	2	53.26882	-6.23585	-	-	-
B.	1	53.26864	-6.23598	Calling	Alarm call	-
MG	1	53.26833	-6.23577	Flyover	-	North-east
BT	1	53.26787	-6.23603	-	-	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
WR	1	53.26797	-6.23618	Singing	-	-
WR	1	53.26797	-6.23564	-	Flushed	-
WR	1	53.2679	-6.23554	Calling	-	-
JD	5	53.26758	-6.23549	-	-	East
BT	1	53.26764	-6.23508	-	-	-
MG	2	53.26736	-6.236	-	Possible pair	-
B.	1	53.26678	-6.23505	-	Perched on wires	-
D.	1	53.2673	-6.23484	Singing	-	-
WP	1	53.26714	-6.2355	-	-	-
BF	4	53.26735	-6.23563	Family Calling	2 males, 2 females	-
BT	2	53.26733	-6.23463	-	-	-
WR	1	53.26758	-6.23406	-	-	-
CC	1	53.26762	-6.23412	-	-	-
MG	2	53.26774	-6.23384	Foraging	-	-
GO	3	53.2671	-6.23316	Flyover	-	South-west
D.	1	53.2667	-6.23294	-	-	-
GT	1	53.26644	-6.23378	-	-	-
PH	3	53.26637	-6.23392	Family	1 female, 2 juvenile	-
ST	1	53.26598	-6.23514	Singing	-	-
GT	2	53.26663	-6.2354	Calling	Fledglings	-
R	1	53.26668	-6.23539	-	Fledgling	-
WW	1	53.26662	-6.23556	-	-	-
BT	1	53.26657	-6.23549	Calling	-	-

BTO Code	Quantity	Latitude	Longitude	Behaviour	Notes	Flight Direction
GO	>3	53.2665	-6.23556	Calling Foraging	-	-

F.3 Breeding Bird Survey Results – 30.06.2023

BTO Code	Latitude	Longitude	Quantity	Behaviour	Notes	Flight Direction
MG	53.26976914	-6.231767856	3	-	-	
RO	53.26961055	-6.231924733	2	Flyover	-	West
WP	53.26938368	-6.23172601	1	Flyover	-	East
RN	53.26918129	-6.231425665	1	Calling	-	
JD	53.26932125	-6.231547035	2	Calling	-	
BT	53.26928034	-6.231858842	1	Calling	-	
WP	53.26903291	-6.231678799	2	-	-	
WR	53.26848389	-6.233201958	1	Calling	-	
WP	53.26864411	-6.233300529	1	Flyover	-	South
WP	53.26894628	-6.233708896	1	-	-	
HG	53.26922981	-6.234022379	2	Flyover	-	Circling
GO	53.26915522	-6.234140731	1	Singing	-	
B.	53.26902649	-6.234252043	1	-	-	
D.	53.26907782	-6.234271154	1	-	-	
GT	53.26904474	-6.23434525	1	-	-	
BT	53.26889997	-6.234339885	1	Calling	-	-
WR	53.26880933	-6.235019825	1	Calling	-	-
GT	53.26903692	-6.235364154	1	Calling	-	-
BC	53.26884944	-6.235623993	1	Foraging	-	-
BC	53.26902509	-6.236259006	1	Singing	-	-
GO	53.26863609	-6.235719882	2	Calling	-	East

BTO Code	Latitude	Longitude	Quantity	Behaviour	Notes	Flight Direction
				Flyover		
WR	53.26863468	-6.235492229	1	Calling	Alarm	-
JD	53.26866937	-6.236145012	2	-	-	West
B.	53.26837145	-6.235790177	1	Calling	Alarm	-
SG	53.26754406	-6.234769709	3	Flyover	-	South
MG	53.26785246	-6.235801354	1	Flyover Carrying food	-	South-west
WP	53.26759178	-6.23519551	1	-	-	South-west
WR	53.2673703	-6.235105036	1	-	-	-
GT	53.26709389	-6.234368384	1	Singing	-	-
WW	53.26709609	-6.234578267	1	Singing	-	-
BT	53.26753832	-6.23435776	1	Calling	-	-
WR	53.26740309	-6.233906038	1	Singing	-	-
WP	53.26738043	-6.233833954	1	-	-	-
J.	53.26772593	-6.233805791	2	Calling	-	-
J.	53.26724107	-6.233250238	3	Family Calling	Alarm (Potential repeat recordings)	-
WP	53.2671759	-6.232882775	3	-	-	-
BC	53.26668983	-6.233105063	1	Singing	-	-
MG	53.26681736	-6.233390048	2	Calling	-	-
GO	53.26681536	-6.233644858	1	Singing	-	-
WP	53.26674417	-6.232434511	2	-	-	-
B.	53.26659277	-6.232173666	1	Calling	-	-
BT	53.26626211	-6.231975183	1	Calling	-	-
WR	53.26620094	-6.231447794	1	Singing	-	-
MG	53.26588812	-6.232284978	1	Calling	-	-

BTO Code	Latitude	Longitude	Quantity	Behaviour	Notes	Flight Direction
GC	53.26654244	-6.233536899	1	Singing	-	-
GO	53.26654946	-6.234716401	3	Singing	-	-
B.	53.26655748	-6.234380119	1	-	-	-
WW	53.26648008	-6.234151125	1	-	-	-
WR	53.26657172	-6.234233228	1	Singing	-	-
BT	53.26663809	-6.234161519	1	Calling	-	-
HG	53.26565109	-6.233485602	1	Flyover	-	East
BT	53.26667579	-6.232995763	1	Foraging	Juvenile	-

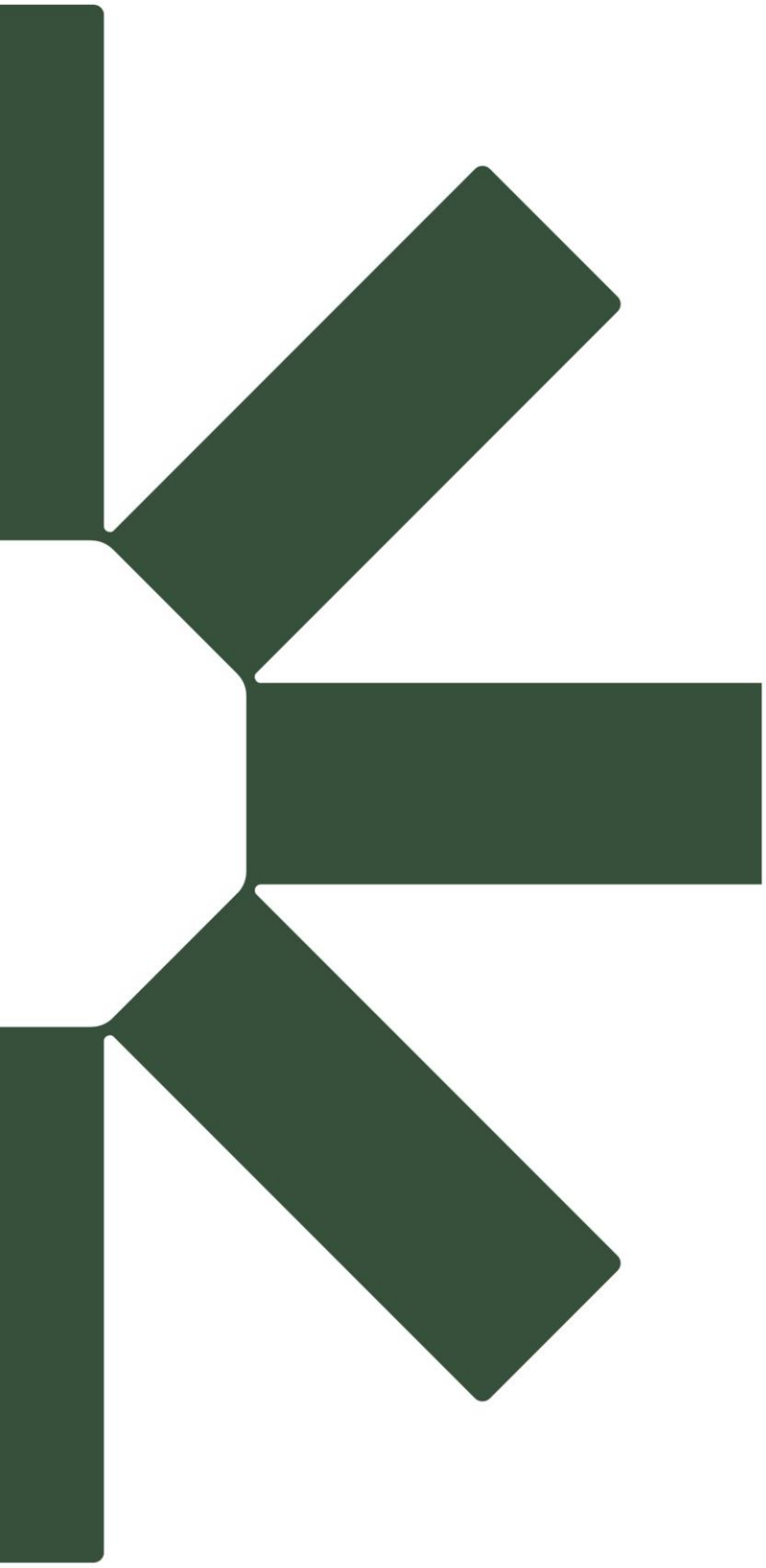
F.4 Breeding Bird Survey Results – 04.07.2023

BTO Code	Latitude	Longitude	Quantity	Behaviour	Notes	Flight Direction
WP	53.26880673	-6.234802231	2	Roosting	-	-
WP	53.26890418	-6.234036125	1	Roosting	-	-
ST	53.26577382	-6.231808215	1	Singing	-	-
GO	53.26597635	-6.234685555	2	Roosting	-	-
HC	53.26626832	-6.235619634	3	Family	-	-
MG	53.26593063	-6.235492565	1	Roosting	-	-
MG	53.26666657	-6.235522404	1	Flyover	-	North
WP	53.26633069	-6.233854741	1	Flyover	-	North
BC	53.26751077	-6.231960095	1	Singing	-	-
B.	53.26752942	-6.233003475	1	-	Male	-
LT	53.26746144	-6.23302158	3	Family Roosting	-	-
CC	53.26749132	-6.232961565	1	-	-	-
Unknown	53.26789477	-6.232646406	1	Nest	Assessed as disused	-
HG	53.26785005	-6.232697703	1	Flyover	-	North
WP	53.26790091	-6.232753685	1	-	-	-
ST	53.26836456	-6.232865342	1	Foraging	-	-
BC	53.26819254	-6.231824644	1	Singing	-	-
BT	53.2681749	-6.233127862	1	Calling	-	-
MG	53.26837421	-6.233251579	1	Calling	-	-
LT	53.26892844	-6.232028492	4	Family	-	-

BTO Code	Latitude	Longitude	Quantity	Behaviour	Notes	Flight Direction
				Foraging		
BC	53.26906078	-6.231701933	1	Singing	-	-
WP	53.26893873	-6.232159298	2	Singing	-	-
R.	53.26931623	-6.231940985	1	Singing	-	-
CC	53.26929718	-6.231785081	4	Family	-	-
JD	53.26932746	-6.231549382	1	Calling	-	-
MG	53.26977414	-6.231834882	1	Foraging	-	-

Appendix G Bat Static Survey Data Summary

Date	**Daubenton's bat** *Myotis daubentonii*	**Whiskered bat** *Myotis mystacinus*	**Leisler's bat** *Nyctalus leisleri*	**Common pipistrelle** *Pipistrellus pipistrellus*	**Soprano pipistrelle** *Pipistrellus pygmaeus*	**Brown long-eared bat** *Plecotus auritus*
06/07/2023	1	1	19	2	0	1
07/07/2023	0	0	16	4	0	0
08/07/2023	0	1	20	3	8	0
09/07/2023	0	0	19	31	2	0
10/07/2023	0	0	24	9	1	1
11/07/2023	0	0	30	3	0	0
12/07/2023	0	0	22	4	2	0
Total recordings	**1**	**2**	**150**	**56**	**13**	**2**



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