



PROPOSED RESIDENTIAL DEVELOPMENT AT FOSTERSTOWN NORTH AND
CREMONA, FOREST ROAD, SWORDS, CO. DUBLIN

Bat Survey Report for Derogation Licence Application

MKN Properties Ltd

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Supporting Information – Bat Survey Report for Derogation Licence Application

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1 TABLE OF CONTENTS

1	TABLE OF CONTENTS	III
2	INTRODUCTION.....	1
2.1	Objective of the Proposed Works	1
2.2	Quality Assurance and Competence	1
3	BACKGROUND TO PROPOSED ACTIVITY	3
4	PROPOSED ACTIVITY (DEVELOPMENT DESCRIPTION).....	4
4.1	Site Location	4
4.2	Proposed Development Description	4
4.3	Description of the Construction Phase	4
4.4	Construction Programme	5
4.5	Working Hours	5
4.6	Description of the Operational Phase	8
4.7	Landscape Plan	8
4.8	Lighting Plan	8
5	ECOLOGICAL SURVEY AND SITE ASSESSMENT	10
5.1	Pre-existing Information	10
5.2	Status in Local/Regional Area	11
5.3	Objectives of Survey	12
5.4	Description of Surveys Area	12
5.5	Survey Methodology	14
5.6	Survey Results	20
5.7	Population Size Class Assessment	24
5.8	Limitations	24
6	EVIDENCE TO SUPPORT THE DEROGATION TESTS	25
6.1	Test 1: Reason for Derogation	25
6.2	Test 2: Absence of Alternative Solutions	25
6.3	Test 3: Impact of a Derogation on Conservation Status	26
7	MONITORING THE IMPACTS OF THE DEROGATIONS	30
	REFERENCES	31
	APPENDIX I – METADATA	32

List of Figures

Figure 4.1. Site location.	6
Figure 4.2. Site layout (JFA, 2026).....	7
Figure 4.3. Landscape Plan (RMDA, 2026).	9
Figure 5.1. Bat landscape suitability model (all bats) surrounding the Site (Source: NBDC).	11
Figure 5.2 Map of habitats present at the Site.	13
Figure 5.3 Bat emergence survey potential roost and vantage point locations.	18
Figure 5.4 Bat transect survey route and point count locations.....	19
Figure 5.5 Re-entry to PRF 3 recorded during survey (bat circled in red).	22

Figure 5.6 Bat activity recorded during the transect surveys.....	23
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List of Tables

Table 4-1. Construction programme.....	5
Table 5-1. Records of bat species for the surrounding grid squares from the NBDC.....	10
Table 5-2. Landscape suitability index for individual bat species within the 2km (O14S) grid square (Source: NBDC). ..	10
Table 5-3 Bat emergence survey's details.	16
Table 5-4 Bat activity surveys' details.	16
Table 5-5. Static detector monitoring details.	17

2 INTRODUCTION

2.1 Objective of the Proposed Works

DNV was commissioned by MKN Properties Limited for the provision of ecological consultancy services for a proposed residential development, entitled 'Fosterstown LRD' at Fosterstown, Swords, Co. Dublin, hereafter referred to as 'Proposed Development' or 'Site'.

The proposed residential development 'Fosterstown LRD' includes the delivery of 741 residential units, as well as the Fosterstown Link Road, a transportation scheme identified within the Fingal Development Plan 2023-2029 (FCC, 2023a) and the Fosterstown Masterplan 2019 (FCC, 2019).

Kylemore House, which contains a confirmed bat roost, lies directly within the footprint of the proposed Fosterstown Link Road and its removal is necessary to facilitate the delivery of the scheme. Consequently, disturbance and loss of the roost cannot be avoided entirely, requiring a derogation licence application under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

2.2 Quality Assurance and Competence

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. HON, Project Ecologist with DNV, undertook the desktop research, and authored the report. HON, CRK and KM undertook bat surveys for this report.

HON, Project Ecologist with 4.5 years' experience in consultancy, has a B.A. in Zoology from Trinity College Dublin. Experience in consulting includes the preparation of ecological assessments, most frequently for Stage I and Stage II AA, and Ecological Impact Assessments (EclA) and Biodiversity Chapters for Environmental Impact Assessment Reports (EIAR), desktop studies, field surveys and data analysis (QGIS). Field survey experience includes terrestrial mammal surveys, ornithology surveys, habitat surveys, marine mammal surveys and aquatic surveys. Experienced as an Ecological Clerk of Works (ECoW) on infrastructure and development projects, providing on-site ecological supervision, compliance monitoring, and consultative support to clients and contractors throughout project delivery. HON is also an Associate member of Chartered Institute of Ecology and Environmental Management (CIEEM).

CRK is an Ecologist with a M.Sc. in Biodiversity and Conservation from Trinity College Dublin. CRK's experience as an ecologist is broad, both in the variety of ecological reports and field surveys conducted. CRK has experience in surveying habitats, birds, plants, bats, mammals and invasive species, with some experience in assessing welfare conditions of animals using behavioural repertoires as indicators. In addition, CRK has one year of experience as an ECoW, providing on-site ecological supervision and compliance support for construction projects. This role included conducting weekly badger checks, assessing stream and watercourse conditions near active construction areas, monitoring for nesting birds, and overseeing a range of smaller ecological protection works to ensure adherence to environmental regulations and best-practice mitigation measures. CRK's experience in ecological report writing extends from research associated literature reviews to Stage I and Stage II AA and Municipal District Summary reports, as well as PEAs, EclAs, and Invasive Species Management Plans (ISMPs).

KM is a Graduate Ecologist with DNV and has a B.Sc (Hons) in Environmental Biology from University College Dublin. KM has a range of fieldwork experience including mammal, bird, and amphibian surveys in addition to freshwater ecology research. Her deskwork experience includes bat call analysis, habitat



mapping, and report writing. KM has contributed to the preparation of several Stage I and Stage II AA and PEA reports.

3 BACKGROUND TO PROPOSED ACTIVITY

The Site is located within the Fosterstown area of Swords and comprises lands zoned for development under the Fingal Development Plan 2023-2029 (FCC, 2023a). The Proposed Development includes residential, commercial, open space and associated infrastructure elements, including the Fosterstown Link Road.

The Fosterstown Link Road is identified within the Fingal Development Plan 2023-2029 (FCC, 2023a) and the Fosterstown Masterplan 2019 (FCC, 2019) as a transportation scheme. The road is specifically provided for within Fingal County Council's transportation objectives and is required to connect the Dublin Road (Swords) with Forest Road, improving connectivity within Swords and facilitating planned residential, commercial and community development.

Swords is identified within the Regional Spatial and Economic Strategy (RSES) as a Key Town within the Metropolitan Area, with a strategic role in accommodating significant population and employment growth. The town functions as Fingal's administrative centre, with strong links to Dublin Airport, the national road network and the Dublin-Belfast Economic Corridor. Future growth within Swords is dependent upon the delivery of supporting infrastructure, including transport improvements such as the Fosterstown Link Road.

4 PROPOSED ACTIVITY (DEVELOPMENT DESCRIPTION)

4.1 Site Location

The Site is located in Fosterstown, Swords, County Dublin, forming the northern portion of the Fosterstown Masterplan area. It is part of a larger landholding bounded by Forest Road to the west and Gaybrook Stream to the south, which delineates the subject lands from the southern section of the Fosterstown Masterplan area. To the east, the Site is bordered by a greenfield site. The surrounding area is predominantly residential, with some commercial uses located at Airside Retail Park to the southeast. The residential estates of Boraimhe and Rivervalley are located to the immediate western and southern boundaries of the Masterplan area. To the southeast lies Airside Retail Park, while a Lidl supermarket is situated immediately to the north of the Site. At present the Site is greenfield in nature occupied with significantly overgrown hedgerows, shrubs and trees. Access to the Site is currently provided via Forest Road, situated to the west of the subject lands. The Site location is outlined in Figure 4.1.

4.2 Proposed Development Description

The Proposed Development in the townland of Fosterstown North and Cremona, Swords, Co. Dublin comprises a total of 741 No. residential units comprising a mix of apartments in a series of 9 No. blocks (A-J) ranging in height from 3 to 8 storeys and 18 No. three storey houses facing Forest Road. The development will be constructed in three main phases. Included in the development is the Fosterstown Link Road which will connect the development with the Dublin Road (R836) to the northeast with Forest Road to the west including junction upgrades; and upgrades to Forest Road. The Proposed Development includes the demolition of Kylemore House and associated outbuildings to facilitate construction of the Fosterstown Link Road. The Proposed Development incorporates 2 No. commercial units, a childcare facility, communal and public open space, internal roads, paths, car parking and cycle parking at surface and undercroft level.

4.3 Description of the Construction Phase

A Construction and Environmental Management Plan (CEMP) was prepared (OCSC, 2026a), but it is not intended to be a final version to cover the eventual construction of any permitted development.

A detailed Construction Management Plan will be prepared in future. This document is intended to be a live document and will be updated continuously to take account of any necessary changes on foot of the planning process and throughout any phased construction period.

The Construction Management Plan, to be agreed upon with the Local Authority before the commencement of any construction works, will ultimately include specific details on the following:

- Daily and weekly working hours;
- Agreed haul routes for incoming materials;
- Licensed hauliers to be used;
- Disposal sites;
- Travel arrangements for construction personnel;
- Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
- Temporary construction entrances to be provided;

- Wheel wash facilities if required;
- Road cleaning and sweeping measures to be put in place if required;
- Temporary construction signage to be put in place and maintained; and
- Any proposed traffic management measures such as temporary traffic lights and signage on any public roads.

4.4 Construction Programme

The construction programme is outline in Table 1-1 below. The programme commences upon receipt of planning permission assumes no pause in development for the duration of the project.

Table 4-1. Construction programme.

Phase	Units	Comment	Proposed Infrastructure Provision
Pre construction	-	6 months detailed design	-
Enabling and Road works	-	6 month roads programme	Commencement of Forest Road upgrade
Phase 1	286	24 month build programme	Commencement of Fosterstown Link Road and completion of Forest Road upgrade
Phase 2a	151	18 month build programme	Extension of Fosterstown Link Road to Block-E vehicular entrance
Phase 2b	304	26 month build programme	Completion of Fosterstown Link Road

Total Units Delivered = 741

4.5 Working Hours

Construction operations will be carried out in accordance with any granted planning conditions. It is expected that normal working hours will be:

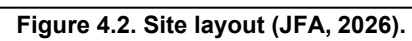
- Monday to Friday: 07:00 – 19:00;
- Saturday: 08:00 – 14:00; and
- No works are permitted on Sundays or Bank Holidays.

It may be necessary for some specific construction activities to take place outside of these times and in those cases, a specific derogation will be sought from the Planning Authority, Fingal County Council.

Deliveries to the site will be arranged to arrive within normal working hours as set out above. There may, again, be specific deliveries which need to arrive outside of these hours e.g. in respect of wide loads. In all such cases, the applicant will again liaise and agree to any necessary derogations with the Planning Authority.



Figure 4.1. Site location.



4.6 Description of the Operational Phase

The Operational Phase will comprise of residential use that is consistent with the neighbouring land use in the area.

4.7 Landscape Plan

The Landscape Plan (Figure 4.3) has been designed to integrate the Proposed Development within a high-quality and ecologically functional green infrastructure network that supports bat movement and foraging activity. Existing vegetation will be retained where feasible and strengthened through additional planting, forming the primary ecological structure of the Site. The north-south treeline traversing the Site, and the treeline along the southern boundary of the Site are being retained. These corridors are supplemented with new native hedgerows, tree planting, and areas of species-rich grassland, which will provide sheltered commuting routes and foraging habitat for bats.

The planting incorporates a mix of native and selected ornamental species. Native species are proposed to provide habitat connectivity and support a diverse invertebrate community, which in turn enhances foraging opportunities for bats, particularly within corridors and boundary treatments. These are complemented by ornamental and urban-tolerant species within streets and public realm areas. Wildflower grassland and SuDS features, including swales, rain gardens, and detention basins, will also support invertebrate communities, further enhancing foraging opportunities for bats.

Overall, the Landscape Plan has the potential to enhance bat habitat within the Site and strengthen ecological networks, provided that planting is appropriately distributed, prioritises native species within key ecological areas, and delivers effective replacement and long-term establishment of habitats.

4.8 Lighting Plan

The Lighting Plan (OCSC, 2026b) has been designed to minimise impacts on biodiversity, particularly bats. Lighting will be directional and controlled to avoid unnecessary illumination, with luminaires designed to limit upward and horizontal light spill. Low-intensity lighting will be used where possible, with LED fittings selected for their minimal UV emission and warm colour temperature ($\leq 2700\text{K}$). Lighting controls will further reduce operation during unnecessary periods. The design complies with relevant guidance, including Bat Conservation Ireland and Institute of Lighting Professionals recommendations (BCI, 2010; ILP, 2023), and incorporates measures such as back baffles to maintain low light spill levels (≤ 2 lux in E3 zones). Overall, the strategy seeks to provide safe pedestrian lighting while protecting adjacent sensitive ecological features.

While the Lighting Plan incorporates bat-sensitive design measures, maintaining darkness along hedgerows will depend on achieving very low light levels at these features. The strategy targets low light levels (≤ 2 lux) in accordance with E3 environmental zone guidance. While this represents a low level of illumination, hedgerows and other sensitive ecological features will require lower light levels (< 1 lux) to function as dark corridors for bats. The use of directional luminaires, shielding, and warm colour temperatures will assist in minimising light spill. Where such levels are maintained and illumination at hedgerow boundaries remains below 1 lux, hedgerows will continue to function as suitable dark corridors for commuting and foraging bats.

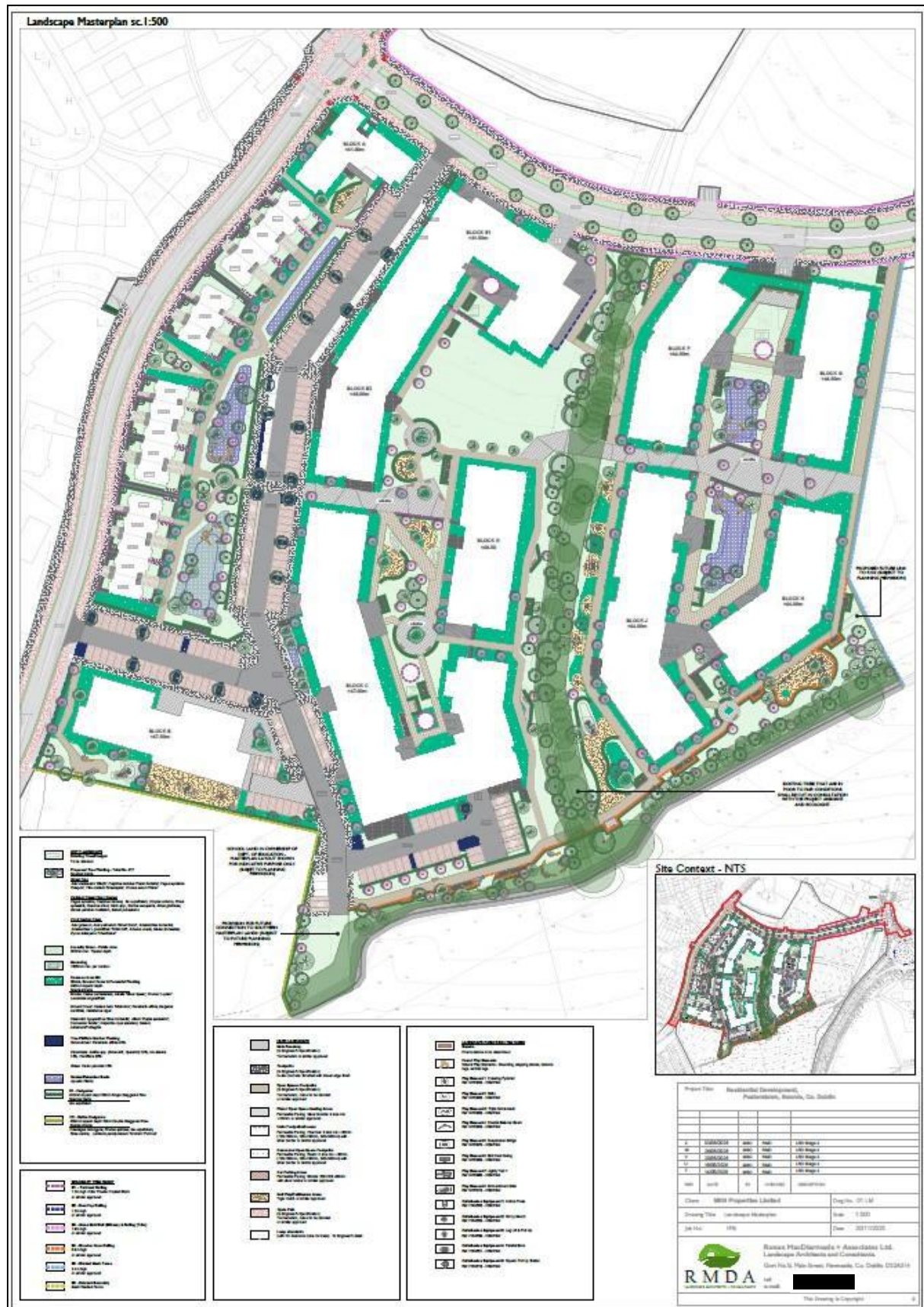


Figure 4.3. Landscape Plan (RMDA, 2026).

5 ECOLOGICAL SURVEY AND SITE ASSESSMENT

5.1 Pre-existing Information

5.1.1 NBDC Database

There were records for seven bat species within the grid squares which encompass the Site.

Details of these records are listed in Table 5-1.

Table 5-1. Records of bat species for the surrounding grid squares from the NBDC.

Species	Grid Square	Date of last Record	Database	Designation
Brown long-eared bat (<i>Plecotus auritus</i>)	O14	11/08/2017	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)
Common pipistrelle (<i>Pipistrellus pipistrellus sensu stricto</i>)	O14 O14S	11/08/2017		
Daubenton's Bat (<i>Myotis daubentonii</i>)	O14	31/08/2020		
Leisler's bat (<i>Nyctalus leisleri</i>)	O14 O14S	24/06/2022		
Natterer's Bat (<i>Myotis nattereri</i>)	O14	31/08/2006		
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	O14 O14S O1745	24/06/2022		
Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	O14 O14S	24/06/2022		

5.1.2 Bat Landscape Suitability

The Site (indicated in the black box in Figure 5.1) is located in an area with an overall Medium-High (31.22) suitability for bats in general. The suitability index for specific bat species is presented in Table 5-2. The landscape suitability index is high for six species of bat; soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Leisler's bat (*Nyctalus leisleri*), whiskered bat (*Myotis mystacinus*), and Natterer's bat (*Myotis nattereri*). Species that have been recorded in the NBDC database within the 10km (O14) grid square are highlighted in green.

Table 5-2. Landscape suitability index for individual bat species within the 2km (O14S) grid square (Source: NBDC).

Bat Species	Suitability Index (2km grid square)
Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	45 (High)
Brown long-eared bat (<i>Plecotus auritus</i>)	42 (High)
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	44 (High)
Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>)	0 (Low)
Leisler's bat (<i>Nyctalus leisleri</i>)	46 (High)
Whiskered bat (<i>Myotis mystacinus</i>)	38 (High)
Daubenton's bat (<i>Myotis daubentonii</i>)	31 (Medium-High)

Bat Species	Suitability Index (2km grid square)
Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>)	1 (Low)
Natterer's bat (<i>Myotis nattereri</i>)	34 (High)

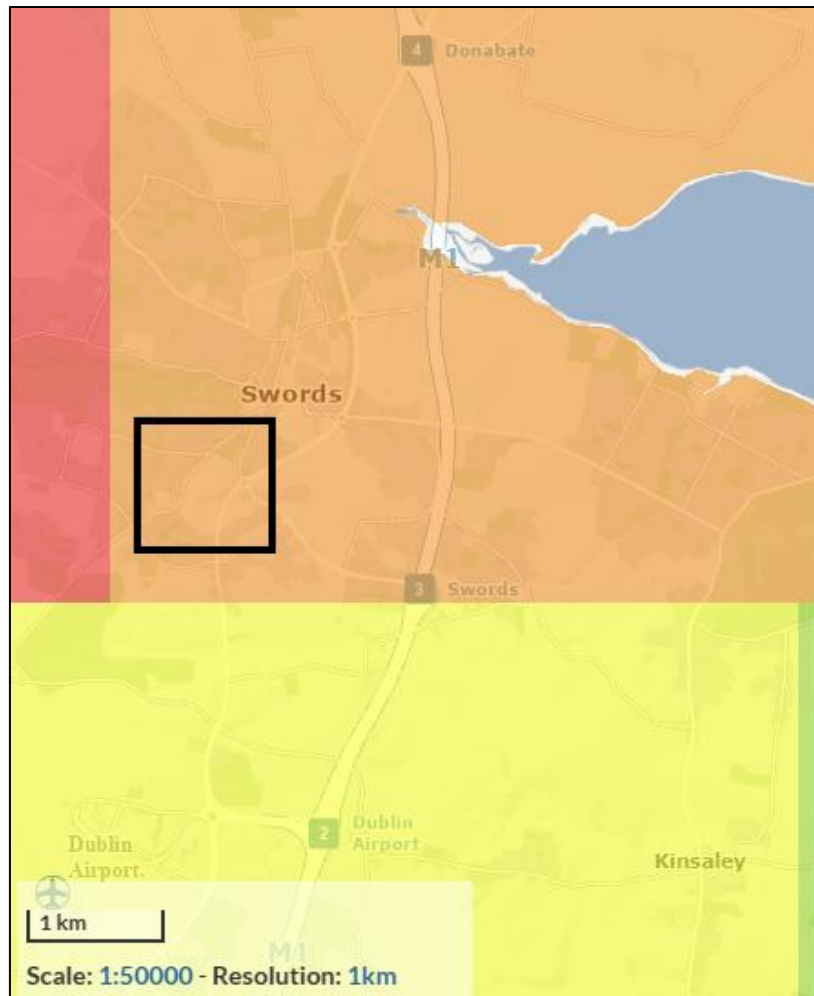


Figure 5.1. Bat landscape suitability model (all bats) surrounding the Site (Source: NBDC).

5.2 Status in Local/Regional Area

Common pipistrelle and soprano pipistrelle are widespread and relatively common bat species in Ireland, and suitable alternative foraging and commuting habitat is present within the wider landscape surrounding the application site.

All bat species have been listed on Annex IV of the EC 'Habitats and Species Directive'. The Habitats Directive was transposed into Irish law as the European Communities (Natural Habitats) Regulations, 1997, and combined with the Wildlife Acts 1976 (as amended), which ensures that individual bats, their breeding sites and resting places are fully protected in Irish law.

All bat species are protected under the Wildlife Acts 1976 as amended, which make it an offence to wilfully interfere with or destroy the breeding or resting place of these species however, the Acts permit limited exemptions for

certain kinds of development which would require a derogation licence to be obtained from the NPWS with input from a qualified Bat Specialist. All species of bats in Ireland are listed on Schedule 5 of the 1976 Act, and are therefore subject to the provisions of Section 23, which make it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat; and
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.

Based on the current survey data, the affected roost is considered to be of local importance only and does not comprise a known maternity roost, hibernation roost or site supporting a significant number of bats based on the survey results to date.

5.3 Objectives of Survey

The following surveys detailed in this report include bat emergence surveys to establish the species present, roost type, and level of usage, and will inform appropriate mitigation measures that may be required to protect bats during demolition works of the Kylemore house, and the overall Construction Phase of the Proposed Development.

5.4 Description of Surveys Area

The Site supported semi improved meadow grassland, hedgerows, drainage ditches, and recolonising bare ground. The grasslands were of low ecological value due to limited diversity and structure. Hedgerows and dense scrub provided better structural variation, acting as wildlife corridors and providing foraging and shelter opportunities. The Gaybrook Stream added some ecological interest but was limited by slow-flowing water, while the bare ground supported only ruderal regrowth.

The Site boundary extends in a northeast direction. The Kylemore House lies within this narrow section of the Site. It is currently an inhabited residence under the ownership of Fingal County Council.

A habitat map is presented in Figure 5.2.



Figure 5.2 Map of habitats present at the Site.

5.5 Survey Methodology

5.5.1 Desk Study

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

- Bat Conservation Ireland (BCI) (2010) *Bats & Lighting Guidance Notes for: Planners, engineers, architects, and developers*;
- Bat Conservation Trust (BCT) (2018) *Bats and artificial lighting in the UK*. Bats and the Built Environment series;
- Collins, J. (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edition). The Bat Conservation Trust, London;
- Information on species records and distributions, obtained from the National Biodiversity Data Centre (NBDC, 2026);
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team;
- Marnell, F., Kelleher, C. & Mullen, E. (2022) *Bat Mitigation Guidelines for Ireland*, Version 2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland; and
- Russ, J. (2012) *British Bat Calls – A Guide to Species Identification*. Pelagic Publishing.

5.5.2 Landscape Suitability

The Bat Conservation Ireland Landscape Suitability Model (Lundy *et al.*, 2011) provides a habitat suitability index for bat species across Ireland. The model divides the country into 1km grid squares and ranks the habitat within the squares according to its suitability for various bat species. The scores are divided into five qualitative categories of suitability, namely:

- 0 - 13.000000: Low
- 13.000001 - 21.333300: Low – Medium
- 21.333301 - 28.111099: Medium
- 28.111100 - 36.444401: Medium – High
- 36.444402 - 58.555599: High

5.5.3 Preliminary Bat Roost Assessment

A daytime inspection of the Site was undertaken on 31st January 2025, 7th May 2025 and 14th May 2026. The aim of the inspection was to search for indication of the presence of roosting bats, and to assess the habitat for its ability to support commuting and foraging bats. Buildings and trees on Site were visually assessed from the ground with the aid of a torch and binoculars. Buildings were assessed for cracks and crevices, or entry points to the roof that might support roosting bats, while trees were searched for Potential Roosting Features (PRFs) such as hollow trunks, knot holes, peeling bark, splits, cracks, and crevices (Collins 2023; Andrews 2018).

Collins (2023) recommends that structures and trees are assessed for their ability to support roosting bats under separate categorisations using professional judgement and sub-categories:

- Negligible – No suitable features observed, however, a small element of uncertainty remains;

- Low – A structure with one or more roost features as used by individual bats opportunistically at any time of year;
- Moderate – A structure with one or more roost features that could be used by bats on a regular basis or by a larger number of bats; and
- High – A structure with one or more roost features that are obviously suitable for use by a larger number of bats on a regular basis, and potentially for longer periods of time. These features have the potential to support high conservation status roosts.

Trees are categorized according to Collins (2023). These classifications are:

- NONE – Either no PRFs in the tree or highly unlikely to be any;
- FAR – Further assessment required to establish if PRFs are present in the tree; and
- PRF – A tree with at least one PRF present.

Where a tree contains at least one PRF, each PRF is further assessed according to Collins (2023). PRFs are scored as either:

- PRF-I – PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats; or
- PRF-M – PRF is suitable for multiple bats and may therefore be used by a maternity colony.

For trees with PRF-I only, no further surveys may be required, but appropriate compensation for all PRF-I must be designed and incorporated in advance of impacts along with a Precautionary Working Method Statement (PWMS). As the Site increases in suitability for roosting bats (e.g., PRF-Ms present), the survey effort increases accordingly. A PRF-M will require a detailed inspection, such as aerial inspection, conducted over three survey visits, a minimum of three weeks apart, which should be carried out between May and September with at least two in the period May to August. Where features are inaccessible by ladder, climbing, or a Mobile Elevating Work Platform (MEWP), or too extensive for a PRF inspection, the aerial inspection should be replaced with emergence surveys carried out between May and September with Night Vision Aids (NVA) where possible or otherwise surveyed using Advanced Licence Bat Survey Techniques (ALBST), such as trapping, tagging, and radio-tracking to inform of the importance of a roost.

5.5.4 Preliminary Bat Habitat Suitability Assessment

Bat Habitat Suitability Assessments were carried out in conjunction with the roost assessments on 31st January 2025, 7th May 2025 and 14th May 2026. This assessment evaluated the habitats present on Site and in the wider area for bat foraging and commuting suitability. Habitat suitability is assessed qualitatively from Negligible to High:

- Negligible – No suitable foraging or commuting habitats on Site;
- Low – Suitable but isolated habitats that could be used by small numbers of commuting and/or foraging bats, such as poorly connected gappy hedgerows, lone trees, unvegetated streams, etc;
- Moderate – Suitable continuous habitat connected to the wider landscape that could be used by commuting and/or foraging bats, such as treelines, scrub, grassland, water, etc; and
- High – Continuous high-quality habitat that is well-connected to the wider landscape, and is likely used regularly by commuting and/or foraging bats, such as river valleys, broadleaved woodland, woodland edge, grazed parkland, etc.

5.5.5 Emergence Surveys

Two emergence surveys have been completed to date by experienced surveyors on 20th May 2026 and 25th June 2026. The first emergence survey was recommended following the update walkover for the updated red line boundary on 14th May 2026. Following confirmation of bat roost presence during this first emergence survey on 20th May 2026, a programme of additional surveys was recommended to characterise the roost and inform the derogation licence application.

Surveyors were situated in locations that gave good views of the PRFs identified within the Site. The methodology of the emergence survey followed best practice guidelines (Collins, 2023; Marnell *et al.*, 2022) with dusk surveys commencing 15 minutes before sunset and lasting until approximately 1.5 – 2 hours after sunset. Each surveyor was equipped with an Elekon full spectrum bat detector and Nightfox Whisker IR camera to record bat activity. Details of the date, times and weather conditions are presented in Table 5-3. The location of assessed roost features and vantage points is presented in Figure 5.3.

Table 5-3 Bat emergence survey's details.

Date	Sunset	Start time	End time	Weather conditions	
				Start	End
20/05/2026	21:26	21:11	23:15	Light breeze, dry, 15°C, 90% cloud cover.	Light breeze, dry, 13°C, 90% cloud cover.
25/06/2026	21:57	21:42	23:57	Light breeze, dry, 24°C, 10% cloud cover.	Light air, dry, 21°C, 0% cloud cover.

5.5.6 Activity Surveys

The Site was assessed by an experienced ecologist in relation to the potential bat foraging habitat and commuting routes. Three bat activity surveys were undertaken (Autumn, Spring and Summer). The surveys were undertaken to best practice guidance (Collins, 2023; Marnell *et al.*, 2022) during times of suitable weather conditions, as detailed in Table 5-4. The surveyor was equipped with a Elekon Batlogger M2 detector and powerful L.E.D. torch and head torches.. Surveys started at sunset and continued for 2 hours, along a predesigned transect route with regular point counts, as presented in Figure 5.4.

Although current guidance would recommend static detector deployment at sites providing moderate suitability foraging and commuting habitat, the walked transect surveys provided sufficient information to characterise bat use of the Site. It is considered unlikely that additional static detector data would have changed the assessment.

Table 5-4 Bat activity surveys' details.

Date	Sunset	Start time	End time	Weather conditions	
				Start	End
21/10/2024	18:15	18:15	20:15	Gentle breeze, dry, 13°C, 100% cloud cover.	Moderate breeze, light rain, 12°C, 100% cloud cover.
15/05/2025	21:18	21:03	23:21	Light breeze, dry, 14°C, 0-25% cloud cover.	Light breeze, dry, 11°C, 0-25% cloud cover.
10/06/2025	21:52	21:52	23:59	Gentle breeze, dry, 14°C, 0-25% cloud cover.	Gentle breeze, dry, 14°C, 25% cloud cover.

5.5.7 Static Detector Surveys

Following confirmation of bat roost presence during the emergence survey on 20th May 2026, one static bat detector has been deployed to date to confirm the likely absence or presence of roosting bats within the building. The detector was placed within the attic of the Kylemore House. Static detectors allow surveyors to capture bat activity over a longer period and help determine how bats may use particular features, providing a more accurate representation of species composition. This information can indicate the relative importance of a structure and whether it is used for commuting, foraging, or roosting.

Static detector monitoring was carried out using a Wildlife Acoustics Song Meter SM4 Bat full spectrum detector, equipped with an ultrasonic microphone, for a minimum of five nights during the bat active season. Deployment dates are listed in Table 5-5.

Table 5-5. Static detector monitoring details.

Survey period	Static detector location	Monitoring period
Monitoring 1	Attic in Kylemore House	25 th June – 30 th June 2026

5.5.8 Data Analysis

Species were identified from recordings using Elekon's BatExplorer software (Version 2.2.6.0). Bat data was analysed and species assigned to each record with reference to species identification guides such as Russ (2012). Each record (i.e., a sequence of bat calls/pulses) is noted as a bat pass; to indicate the level of bat activity for each species recorded. Each bat pass does not correlate to an individual bat but is representative of bat activity levels. Some bats such as Pipistrelle species may continuously fly around a habitat or feature, therefore, it is possible that a series of bat passes within a similar time frame is representative of an individual bat. On the other hand, Leisler's bats (*Nyctalus leisleri*) tend to travel through an area quickly, and as such, an individual sequence or bat pass is more likely to be indicative of individual bats.

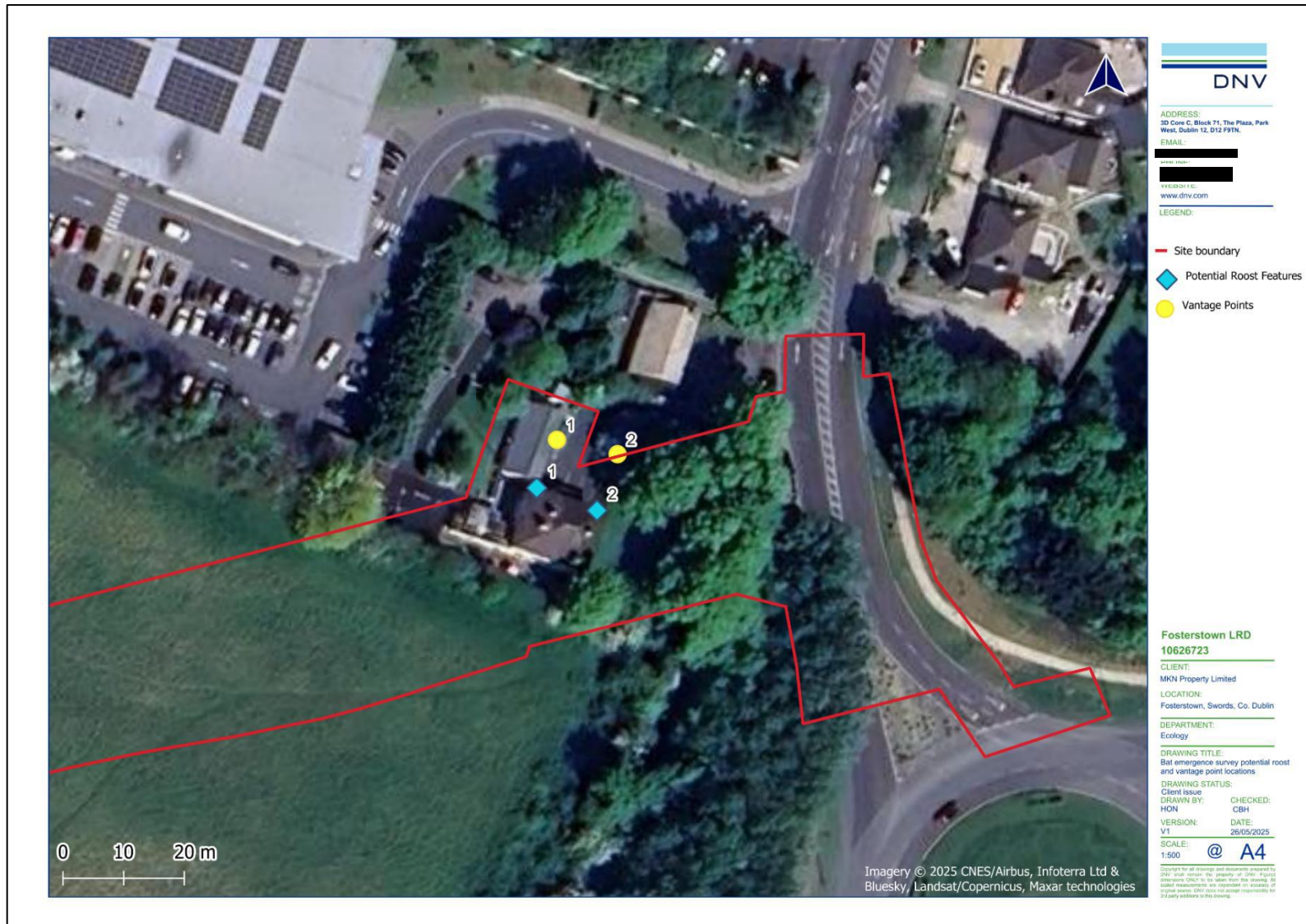


Figure 5.3 Bat emergence survey potential roost and vantage point locations.



Figure 5.4 Bat transect survey route and point count locations.

5.6 Survey Results

5.6.1 Preliminary Bat Roost and Habitat Suitability Assessment

A Preliminary Bat Roost Assessment and Bat Habitat Suitability Assessment were undertaken during Site visits on 31st January 2025, 7th May 2025 and 14th May 2026.

Roost Potential – Structures

The Kylemore House was assessed for bat roost potential based on exterior inspection only. Internal inspection was not possible due to current occupation. No evidence of current or historic bat roosts (e.g., droppings, staining or feeding remains) was recorded during the survey. Two PRFs were noted beneath the fascia. The building exterior was noted to be well lit in the evening, which may reduce suitability; however, it is located in proximity to more suitable commuting habitat to the south.

	
Photograph 1. Kylemore House	Photograph 2. PRF 1 on Kylemore House
	
Photograph 3. PRF 2 on Kylemore House	

Based on these observations, the building is considered to have low suitability for roosting bats. The identified features may support individual opportunistic bats or small numbers of bats on a temporary basis, particularly during transitional periods (e.g. spring or autumn).

Roost Potential – Trees

All mature and semi-mature trees within the Site were assessed from the ground using binoculars and torches. The majority of trees were assessed as having negligible or low bat roost potential, typically due to thin trunks, lack

of broken limbs/cracks in bark, or ivy cover concealing but unlikely to contain significant features. A small number of mature trees with cracks, broken branches, or extensive ivy were classified as having low potential (PRF-I) on a precautionary basis, and were considered unlikely to support significant roost features, but potential to support individual bats.

Overall, the Site supports predominantly negligible to low bat roost potential. While a very small number of trees may offer PRF-I habitat suitable for 1–2 opportunistic bats, no trees were assessed as retaining moderate or high potential (PRF-M). Importantly, none of the trees are considered capable of supporting significant roosts such as maternity roosts.

Habitat Suitability – Foraging and Commuting

The habitats on Site were also assessed for their potential to provide suitable features which could be used by commuting and foraging bat species which may be present in the area. The linear features within the Site (i.e., hedgerow habitat throughout the Site) may provide moderate suitability foraging and commuting habitat due to the connectivity throughout the Site, and to the wider landscape.

5.6.2 Bat Emergence Survey

Two bat emergence surveys were carried out on the Kylemore House on 20th May and 25th June 2026.

During the first survey in May, two bat re-entries were recorded from Vantage Point 1 (see Figure 5.3), with bats observed entering a gap between the building and the gutter, adjacent to PRF 1. This gap will now be referred to as PRF 3. While entry was not directly into PRF 1 itself, these observations confirm roosting activity within the structure at the time of survey.

Call analysis indicates that the re-entries coincided with common pipistrelle and soprano pipistrelle passes. In addition, multiple social calls were recorded in the vicinity of the building, providing further evidence of roost related behaviour. A total of 40 bat passes, and two bat species were detected during the survey. Soprano pipistrelle was the most frequently recorded species, comprising 58% of total bat passes, while common pipistrelle comprised the remaining 42%.

The roost entry point recorded during this survey is presented in Figure 5.5.

During the second survey in June, no bat emergences were recorded from the two vantage points surveyed, indicating the likely absence of roosting bats within these structures at the time of survey.

A total of 38 bat passes, and three bat species were detected during the survey. Soprano pipistrelle was the most frequently recorded species, comprising 63% of total bat passes, while common pipistrelle comprised 34%, and Nathusius' pipistrelle (*Pipistrellus nathusii*) comprising 3%.

The metadata for the bat passes recorded during the emergence surveys are presented in Appendix I – Metadata.



Figure 5.5 Re-entry to PRF 3 recorded during survey (bat circled in red).

5.6.3 Bat Activity Surveys

Three bat activity transects were carried out, which recorded low levels of bat activity overall, dominated by common and widespread species such as Leisler's bat, common pipistrelle and soprano pipistrelle, with individuals frequently observed displaying foraging behaviour. Pipistrelle were often recorded along hedgerows, while Leisler's bat were recorded over the grassland habitat, as well as along hedgerows.

During Transect 1, there was one Leisler's bat, and one Soprano pipistrelle recorded. During Transect 2, there was nine common pipistrelle, five Leisler's bat, and three Soprano pipistrelle recorded. During Transect 3, there was 13 common pipistrelle, 22 Leisler's bat, and one Soprano pipistrelle recorded. Light rain and moderate wind towards the end of Transect 1 could have contributed to the low activity recorded (Table 5-4).

Bat activity recorded during these transects is presented in Figure 5.6.

5.6.4 Bat Static Surveys

A static detector was deployed within the Kylemore House over one monitoring period. During the monitoring period (25th June – 30th June 2026), one static detector was deployed in the attic of the Kylemore House. There was no bat activity recorded during that monitoring period, indicating the likely absence of bats using the attic at the time of survey.



Figure 5.6 Bat activity recorded during the transect surveys.

5.7 Population Size Class Assessment

Bat roosting activity was confirmed within Kylemore House during an emergence survey undertaken on 20th May 2026. Two bats were observed re-entering the building, indicating the presence of a roost.

Based on the survey results, the roost is considered likely to support a small number of common pipistrelle and/or soprano pipistrelle bats. The survey data indicate that the roost is most likely to support low conservation status day roosts for individual bats. The numbers of bats recorded do not indicate the presence of a maternity roost. Whilst additional survey effort could provide further confirmation, it is considered unlikely that this would change the conclusions of the assessment.

Based on the currently available information, the roost does not appear to support a large or significant bat population. The affected bats are considered to form part of the wider local population of common pipistrelle and/or soprano pipistrelle bats within the Swords area.

5.8 Limitations

Every effort has been made to confirm the absence/present of roosting bats on Site; however, the following specific limitations apply to this assessment:

- As presence was established, roost characterisation surveys were triggered. However, due to the timing of this application, the proposed survey programme is ongoing at the time of writing. Whilst additional survey effort could provide further confirmation, it is considered unlikely that this would change the conclusions of the impact assessment and mitigation strategies.
- Current guidance would recommend static detector deployment at sites providing moderate suitability foraging and commuting habitat. However, the walked transect surveys provided sufficient information to characterise bat use of the Site. It is considered unlikely that additional static detector data would have changed the assessment.

6 EVIDENCE TO SUPPORT THE DEROGATION TESTS

6.1 Test 1: Reason for Derogation

This derogation licence application is being made under Regulation 54(2)(a-e) of the European communities (Birds and Natural Habitats) Regulations. It was submitted for option C (ii) which states, “*other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.*”

The Proposed Development includes the delivery of 741 residential units, as well as the Fosterstown Link Road, a transportation scheme identified within the Fingal Development Plan 2023-2029 (FCC, 2023a) and the Fosterstown Masterplan 2019 (FCC, 2019). The road is specifically provided for within Fingal County Council's transportation objectives and is required to connect the Dublin Road (Swords) with Forest Road, improving connectivity within Swords and facilitating planned residential, commercial and community development.

Swords is identified within the Regional Spatial and Economic Strategy (RSES) as a Key Town within the Metropolitan Area, with a strategic role in accommodating significant population and employment growth. The town functions as Fingal's administrative centre, with strong links to Dublin Airport, the national road network and the Dublin-Belfast Economic Corridor. Future growth within Swords is dependent upon the delivery of supporting infrastructure, including transport improvements such as the Fosterstown Link Road.

The building containing the bat roost (Kylemore House) lies directly within the footprint of the proposed Fosterstown Link Road and its removal is necessary to facilitate the delivery of the scheme. Consequently, disturbance and loss of the roost cannot be avoided entirely.

The survey data indicate that the roost is most likely to support low conservation status day roosts for individual bats, likely used by common pipistrelle (*Pipistrellus pipistrellus*) and/or soprano pipistrelle (*Pipistrellus pygmaeus*) bats. The numbers of bats recorded do not indicate the presence of a maternity roost. Whilst additional survey effort could provide further confirmation, it is considered unlikely that this would change the conclusions of the assessment.

Based on the currently available information, the roost does not appear to support a large or significant bat population. The affected bats are considered to form part of the wider local population of common pipistrelle and/or soprano pipistrelle bats within the Swords area.

6.2 Test 2: Absence of Alternative Solutions

The following alternatives to the proposed activity were considered and found to be unsatisfactory:

6.2.1 Do-Nothing

Under the do-nothing scenario, Kylemore House would be retained and the bat roost would remain undisturbed. However, the Fosterstown Link Road would not be constructed and the wider Proposed Development could not be delivered as designed.

This solution is unsatisfactory as it would prevent the delivery of the transportation scheme identified within the Fingal Development Plan 2023-2029 (FCC, 2023a) and the Fosterstown Masterplan 2019 (FCC, 2019). The road is required to provide a link between the Dublin Road (Swords) and Forest Road, improve connectivity within Swords, facilitate access to zoned development lands and support planned residential, commercial and community development. Failure to deliver the road would undermine the implementation of adopted planning and transportation objectives and would restrict the efficient development of the area.

While the do-nothing scenario would avoid impacts on the bat roost, it would not achieve the objectives of the Proposed Development and is therefore not considered a satisfactory alternative. Additionally, given that the roost is considered to

be a low conservation status day roost supporting a small number of bats, avoiding the scheme to retain the roost would be disproportionate to the nature and significance of the ecological impact.

6.2.2 Realignment of the Road

The possibility of retaining Kylemore House through realignment of the proposed road layout was considered. This option would avoid direct impacts on the bat roost by retaining the building. However, Kylemore House is located directly within the footprint of the proposed Fosterstown Link Road. The route has been developed with regard to existing transport infrastructure, land ownership boundaries, adjacent development parcels, engineering constraints and the requirement to provide an effective connection between the Dublin Road (Swords) and Forest Road.

Significant realignment of the road to avoid Kylemore House would compromise the functionality and design of the scheme, reduce the efficiency of the proposed transport network and potentially result in additional ecological and environmental impacts elsewhere within the Site. Realignment could also affect the layout and delivery of the wider Proposed Development. Furthermore, Fingal County Council instructed that the road be aligned as proposed and has confirmed the current design.

While realignment of the proposed road layout would avoid impacts on the bat roost at Kylemore House, it would not meet the transportation objectives for the area and is therefore considered unsatisfactory. Additionally, given that the roost is considered to be a low conservation status day roost supporting a small number of bats, the realignment of the scheme to retain the roost would be disproportionate to the nature and significance of the ecological impact.

6.3 Test 3: Impact of a Derogation on Conservation Status

The proposed derogation relates to the disturbance and loss of a bat roost associated with Kylemore House, which is required to facilitate the construction of the Fosterstown Link Road. Roosting activity was confirmed during surveys, with two bats observed re-entering the building on only one of two survey nights. Based on the survey results, the roost is considered likely to support a low number of common pipistrelle and/or soprano pipistrelle bats. The survey data indicate that the roost is most likely to support low conservation status day roosts for individual bats. The numbers of bats recorded do not indicate the presence of a maternity roost. Whilst additional survey effort could provide further confirmation, it is considered unlikely that this would change the conclusions of the assessment.

Although limited roosting activity was confirmed within Kylemore House, the removal of this roost through demolition in the absence of mitigation would result in a negative impact on the local common pipistrelle and/or soprano pipistrelle population through the loss of a low conservation status day roosts for individual bats.

Therefore, the mitigation measures outlined in section 6.3.1 will be implemented to minimise impacts on bats and ensure the continued availability of suitable roosting opportunities within the local area.

Common pipistrelle and soprano pipistrelle are widespread and relatively common bat species in Ireland, and suitable alternative foraging and commuting habitat is present within the wider landscape surrounding the application site. Based on the current survey data, the affected roost is considered to be of local importance only and does not comprise a known maternity roost, hibernation roost and the site does not support a significant number of bats based on the survey results to date.

Following implementation of the proposed mitigation measures, the impact of the loss of the roost is expected to be localised and minor. The provision of replacement roosting features, together with the retention of suitable foraging and commuting habitat, will ensure that bats continue to have access to suitable habitat within the local area.

It is therefore concluded that the proposed derogation will not be detrimental to the maintenance of common pipistrelle and/or soprano pipistrelle populations at a favourable conservation status within their natural range. The predicted effects are limited to a small number of individuals associated with a roost of local importance and will be adequately addressed through the implementation of the proposed mitigation and compensation measures.

6.3.1 Mitigation Measures

6.3.1.1 Pre-construction Surveys

A pre-demolition bat inspection will be carried out immediately prior to works. As the proposed demolition of the Kylemore House is proposed within the last phase of the construction programme, a pre-demolition bat inspection will also be carried out immediately prior to works. This will include a detailed inspection of all identified PRFs and any newly identified features, to confirm the status of bat roosting activity.

6.3.1.2 Derogation Licence

Given that a bat roost has been confirmed within a structure that will be impacted by the Proposed Development, a derogation licence will be required from the NPWS. In line with NPWS guidance and the precautionary principle, a derogation licence application will be submitted in advance of works to ensure compliance with legislative requirements.

Where required, an updated or additional derogation licence will be submitted to NPWS to reflect current findings. All works will be carried out in accordance with the terms and conditions of the licence, once granted.

6.3.1.3 Bat Box Scheme

It is proposed to place a total of 50 No. bat boxes within the Site. These will provide an important roost habitat for bat species which may be using the Site. Where feasible, these will comprise a combination of integrated bat boxes (built into buildings), and external bat boxes mounted on retained mature trees. Integrated features are preferred as they provide more durable and thermally stable roosting opportunities.

A suitably qualified ecologist will be required to select and oversee the specification and placement of these bat boxes in suitable locations, paying consideration factors such as aspect and height. The placement of some of the bat boxes will be similar to the existing roost (i.e., aspect, height). The final plan will be agreed with the local planning authority prior to implementation.

These bat boxes, will work in tandem with the following, to ensure that the Proposed Development will not result in a significant adverse impact on bat species:

- The reinstatement of grassland habitat and wildflower meadows along edge habitat (e.g., scrub and hedgerow edges);
- The planting of multiple tree species within the Site;
- The bat friendly lighting plan; and
- The planting of hedgerows and trees to provide connectivity and additional foraging and commuting habitat throughout the Site.

6.3.1.4 Retention and Enhancement of Existing Habitat Features

Existing vegetation will be retained wherever possible and strengthened through the introduction of new native hedgerows and wildflower mixes, reinforcing ecological corridors and increasing habitat diversity across the Site. Additional native hedgerows will provide connectivity to the wider landscape, while wildflower planting in grassed areas and detention basins will broaden the range of species supported. These measures ensure that appropriate habitats are introduced which both preserve and enhance the biodiversity value of the Site.

Planting has been selected to align with the objectives of the All-Ireland Pollinator Plan 2021–2025, incorporating native wildflower meadows, pollinator-friendly perennials, and flowering trees to provide nectar and habitat resources throughout the active season from early spring to late autumn. Long-term management will include seasonal mowing and pesticide-free regimes to maintain habitat quality, while hedgerows, trees, and grass areas will be regularly maintained to manage roosting opportunities and prevent standing water in detention areas.

6.3.1.5 Bat Roost Removal

The following measures will be implemented to ensure that bats are not killed or injured during the demolition works, however, these may be subject to alteration in adherence to the derogation license terms:

- A licensed Bat Ecologist will be instructed to advise on and supervise the demolition of all buildings. **No demolition works will take place until the Bat Ecologist is available to supervise the works;**
- The Bat Ecologist will assess the structures in question prior to commencement and advise on the best approach to ensure their careful demolition; to minimise the impacts to roosting bats;
- During the week prior to the commencement of works, a bat survey may be carried out of the buildings to confirm bat presence/absence. The Bat Ecologist will inspect the buildings for the presence of bats by utilizing several methods and specialist equipment;
- Where there is any doubt whether bats may be present, a follow-up inspection of the structure must be undertaken. This may require access from a hoist or other mobile elevated work platform (MEWP). This should avail of a thermal imagery camera or scope, and an endoscope;
- If pre-commencement surveys or works reveal anything that significantly alters the findings of this Report, the NPWS will be informed prior to commencement of works and consulted;
- If necessary, exclusion of bats from the roosting features within the structures using one way valve devices may be installed by a bat specialist;
- The demolition of the structures will be carried out between October and March to minimise any harm to bats present. Demolition is possible during other times of year subject to a licenced bat handler being present. As the Site contains at least one confirmed roost, bat boxes will be erected on Site, prior to any work commencing;
- Roofing materials including soffits, eaves, tiles, and any other protective sheeting will be removed manually using handheld tools where the Bat Ecologist deems it necessary. This will enable bats, if present, to escape unharmed. Buildings containing previously confirmed roosts will not be demolished using a mechanical excavator;
- Works within the vicinity of the roost will not occur after sunset or prior to dawn to further reduce the potential disturbance to commuting or foraging bats; and
- If bats are encountered, they should be safely retained by a licenced bat handler in an escape-proof container until nightfall and then released on Site.

6.3.1.6 Construction Phase Lighting Regime

Where possible, Construction Phase lighting will be switched off during non-working hours. However, during use, directional lighting will be the lighting of choice as this will minimise light spill from the site, into any surrounding areas which may be in use by bats that may be commuting/foraging in the area.

It is recommended that LED luminaires possessing a warm white spectrum (2700k – 3000k) be used so as to reduce the blue light component. LED lights are also ideal due to their sharp cut-off, lower intensity, and dimming capabilities.

6.3.1.7 Operational Phase Lighting

In order to minimise disturbance to bats utilising the site in general, the lighting and layout of the Proposed Development will be designed to minimise light-spill onto habitats used by the local bat population foraging or commuting. This can be achieved by ensuring that the design of lighting accords with guidelines presented in the Bat Conservation Trust (BCT) & Institute of Lighting Engineers (ILE) 'Bats and Lighting in the UK - Bats and Built Environment Series' (BCT & ILE, 2009), the BCT 'Artificial Lighting and Wildlife Interim Guidance' (BCT, 2018) and the BCT 'Statement on the impact and design of artificial light on bats' (BCT, 2022).

Therefore, where possible, the lighting scheme will include the following:

- Lighting will only be installed where necessary for public safety in known Bat Foraging and Roosting locations (hedgerows/treelines). These lights have been designed and selected with specific shutters and filters to minimise any potential for back spills into the sensitive locations while still providing the primary function of safely lighting the pedestrian routes;
- Lighting along existing treeline will be avoided where possible and bat friendly; using low level bollards, motion sensors where applicable, once health and safety standards are met;
- Reflectance's – Downward lighting can be reflected from bright surfaces. To minimize bat disturbance, the design avoids the use of bright surfaces and incorporates darker colour lamp heads and poles to reduce reflectance. Only luminaires with an upward light ratio of 0% and with good optical control to be used;
- Lighting controls and dimming shall be utilised for post-curfew times;
- Shielding of Luminaires & Light - To minimize bat disturbance, the design avoids the use of upward lighting by shielding or by downward directional focus (i.e., no upward tilt); and
- Type of Light – To minimize bat disturbance, the design avoids the use of strong UV lighting. The lighting design is based on the use of LED lighting which has minimal or no UV output of significance. Warmer 2700°K LED lighting will be utilized for amenity areas, as the warmer colour temperatures with peak wavelengths greater than 550nm (~3000°K) cause less impacts on bats.

7 MONITORING THE IMPACTS OF THE DEROGATIONS

The bat monitoring programme for the Site has been designed to ensure compliance with best practice guidelines and to enhance roosting and foraging opportunities for local bat populations. In addition to the installation of bat boxes, the strategy incorporates measures to maintain dark corridors, and minimise artificial light intrusion to likely bat foraging, roosting and commuting areas.

Post-construction monitoring will be undertaken over a one-year period to assess the effectiveness of these measures. This monitoring will include seasonal activity surveys and inspections of installed bat boxes by a licensed bat specialist, ensuring that any necessary adjustments to the mitigation approach can be implemented promptly. The results of these surveys will be reported to the NPWS, Local Authority and shared with Bat Conservation Ireland to contribute to national data on bat conservation.

The monitoring programme will be run with the following schedule:

- Commence in the Spring following the completion of the works;
- One activity survey per season (Spring: April-May; Summer: June-August; Autumn: Sept-Oct) using both static detectors and walked night time bat walks (NBW), as per the most current best practice guidance (Collins 2023);
 - Each NBW will dedicate time to observe 2-4 bat boxes at a time for emergence at the beginning of each survey. The boxes selected for observation should vary between surveys.
- Inspection of bat boxes between November and March by a licenced bat ecologist to determine usage (signs of use include scratch marks, droppings, staining, etc.);
- Progress report will be submitted to the NPWS, Local Authority and shared with Bat Conservation Ireland; and
- Report containing results and analysis of the monitoring programme will be presented to the NPWS, Local Authority and shared with Bat Conservation Ireland.

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APPENDIX I – METADATA

Survey	VP	Recording	Timestamp	Species Text	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Latitude [WGS84]	Longitude [WGS84]
1	1	24250002	5/20/2026 21:41	<i>Pipistrellus pipistrellus</i>	7	46.7	53.8	45.2	4.6	190	53.45072	-6.22624
1	1	24250000_1	5/20/2026 21:34	<i>Pipistrellus pipistrellus</i>	5	43	47.7	41.7	7	472	53.4507	-6.22622
1	1	24250000_2	5/20/2026 21:34	<i>Pipistrellus pipistrellus</i>	8	41.8	43.7	41.1	5.1	132	53.4507	-6.22622
1	1	24250001	5/20/2026 21:34	<i>Pipistrellus pipistrellus</i>	16	42.1	46.4	41.3	6	95	53.4507	-6.22621
1	1	24250003	5/20/2026 21:42	<i>Pipistrellus pygmaeus</i>	19	52.8	64.5	52	6	90	53.45069	-6.22623
1	1	24250004_1	5/20/2026 21:43	<i>Pipistrellus pipistrellus</i>	18	46.5	57.1	45.3	5	95	53.45069	-6.22623
1	1	24250004_2_1	5/20/2026 21:43	<i>Pipistrellus pipistrellus</i>	19	46.2	55.6	45.2	5	100	53.45069	-6.22623
1	1	24250004_3	5/20/2026 21:43	<i>Pipistrellus pipistrellus</i>	1	20.3	22.5	19.1	4.8	0	53.45069	-6.22623
1	1	24250005_1	5/20/2026 21:43	<i>Pipistrellus pipistrellus</i>	6	45.6	46.9	44.4	6	148	53.45069	-6.22623
1	1	24250005_2	5/20/2026 21:43	<i>Pipistrellus pipistrellus</i>	5	45.6	47.5	44.3	6	212	53.45069	-6.22623
1	1	24250006	5/20/2026 21:45	<i>Pipistrellus pygmaeus</i>	20	56.1	77	55.4	6	80	53.45072	-6.22624
1	1	24250007_1	5/20/2026 21:48	<i>Pipistrellus pipistrellus</i>	10	47.2	59	46.4	5	90	53.45073	-6.22624
1	1	24250007_2	5/20/2026 21:48	<i>Pipistrellus pipistrellus</i>	5	48	53.8	46.9	2.3	367	53.45073	-6.22624
1	1	24250008	5/20/2026 21:53	<i>Pipistrellus pygmaeus</i>	20	57.9	62.5	57.2	2	80	53.45072	-6.22623
1	1	24250009	5/20/2026 21:53	<i>Pipistrellus pygmaeus</i>	26	57.1	70.4	56.4	3	80	53.45072	-6.22623
1	1	24250010	5/20/2026 22:21	<i>Pipistrellus pipistrellus</i>	26	47.7	60.8	46.5	3	90	53.45074	-6.22623
1	1	24250012_1	5/20/2026 22:25	<i>Pipistrellus pygmaeus</i>	25	56.5	63.3	55.7	5	160	53.45074	-6.22626
1	1	24250012_2	5/20/2026 22:25	<i>Pipistrellus pygmaeus</i>	1	18	24	12	2.7	0	53.45074	-6.22626
1	1	24250013	5/20/2026 22:29	<i>Pipistrellus pygmaeus</i>	25	42.6	53.7	41.8	6	185	53.45072	-6.22628
1	1	24250014	5/20/2026 22:33	<i>Pipistrellus pipistrellus</i>	8	49.8	60	48.8	3	319	53.45074	-6.22622
1	1	24250015	5/20/2026 22:37	<i>Pipistrellus pygmaeus</i>	38	59.5	73	58.2	4	70	53.45074	-6.22621
1	1	24250016	5/20/2026 22:48	<i>Pipistrellus pygmaeus</i>	33	58.4	69.8	57.4	3	84	53.45076	-6.22622
1	1	24250017_1	5/20/2026 22:53	<i>Pipistrellus pygmaeus</i>	8	54.8	65.5	53.3	3	219	53.45074	-6.22621
1	1	24250017_2	5/20/2026 22:53	<i>Pipistrellus pygmaeus</i>	6	52.5	59.7	51.6	3	170	53.45074	-6.22621
1	1	24250018	5/20/2026 22:53	<i>Pipistrellus pygmaeus</i>	21	52.2	62.1	51.4	5	84	53.45074	-6.2262
1	1	24250019	5/20/2026 22:53	<i>Pipistrellus pygmaeus</i>	4	54.7	61.5	53.2	3.1	87	53.45074	-6.2262
1	1	24250020	5/20/2026 22:53	<i>Pipistrellus pygmaeus</i>	25	51.5	67.9	50.8	5	150	53.45075	-6.2262
1	1	24250022	5/20/2026 22:56	<i>Pipistrellus pygmaeus</i>	29	58.3	98.3	57	4	86	53.45074	-6.22623
1	1	24250023	5/20/2026 22:56	<i>Pipistrellus pipistrellus</i>	25	48.6	63.9	47.4	3	86	53.45075	-6.22622
1	1	24250024	5/20/2026 22:56	<i>Pipistrellus pygmaeus</i>	9	58.3	74.7	57.5	3	172	53.45075	-6.22622
1	1	24250025	5/20/2026 22:57	<i>Pipistrellus pygmaeus</i>	21	59.1	67.4	58	3	80	53.45074	-6.22622
1	1	24250026	5/20/2026 22:57	<i>Pipistrellus pygmaeus</i>	26	59.6	77.1	58.2	3	85	53.45074	-6.22622
1	1	24250027	5/20/2026 23:00	<i>Pipistrellus pygmaeus</i>	45	57.8	76	56.6	4	85	53.45075	-6.22622
1	1	24250028	5/20/2026 23:04	<i>Pipistrellus pipistrellus</i>	23	39.9	43.9	39.1	6	177	53.45074	-6.22623
1	1	24250029	5/20/2026 23:05	<i>Pipistrellus pipistrellus</i>	21	39.5	40.3	38.9	7	110	53.45075	-6.22623
1	1	24250030	5/20/2026 23:05	<i>Pipistrellus pygmaeus</i>	26	54.3	66.4	53	5	164	53.45076	-6.22624
1	1	24250031	5/20/2026 23:05	<i>Pipistrellus pygmaeus</i>	13	56	74	54.3	4	80	53.45075	-6.22623
1	1	24250032	5/20/2026 23:05	<i>Pipistrellus pygmaeus</i>	34	57.1	70.8	54.4	3	80	53.45076	-6.22624
1	1	24250033	5/20/2026 23:07	<i>Pipistrellus pygmaeus</i>	14	55.7	77.1	54.8	4	90	53.45075	-6.22621
1	1	24250034	5/20/2026 23:09	<i>Pipistrellus pipistrellus</i>	17	47.4	58.3	46	5	180	53.45074	-6.22622
1	2	24240004	5/20/2026 21:45	<i>Pipistrellus pygmaeus</i>	3	52.9	54.4	51.6	2.9	615	53.45074	-6.2262
1	2	24240001_1	5/20/2026 21:38	<i>Pipistrellus pipistrellus</i>	19	42.2	46.3	41.3	6	94	53.45071	-6.22621
1	2	24240001_2	5/20/2026 21:38	<i>Pipistrellus pipistrellus</i>	16	42.1	45.9	41.2	6	100	53.45071	-6.22621

Survey	VP	Recording	Timestamp	Species Text	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Latitude [WGS84]	Longitude [WGS84]
1	2	24240002_1	5/20/2026 21:44	<i>Pipistrellus pipistrellus</i>	14	47.4	52.6	45.4	4	95	53.45073	-6.22623
1	2	24240003	5/20/2026 21:45	<i>Pipistrellus pygmaeus</i>	21	53.1	62.7	52.1	5	90	53.45074	-6.2262
1	2	24240005	5/20/2026 21:46	<i>Pipistrellus pipistrellus</i>	24	46.7	57.3	45.4	6	93	53.45073	-6.22621
1	2	24240006	5/20/2026 21:48	<i>Pipistrellus pygmaeus</i>	23	56.3	84.5	55.6	5	80	53.45072	-6.22623
1	2	24240007	5/20/2026 21:50	<i>Pipistrellus pipistrellus</i>	8	47	54	45.9	4	80	53.45072	-6.22623
1	2	24240008	5/20/2026 21:51	<i>Pipistrellus pipistrellus</i>	20	47.8	67.5	46.4	3	94	53.45071	-6.22625
1	2	24240009	5/20/2026 21:56	<i>Pipistrellus pygmaeus</i>	18	58	66.8	57	2	80	53.45072	-6.22621
1	2	24240010_2	5/20/2026 21:56	<i>Pipistrellus pygmaeus</i>	3	57.8	63.2	56.3	2.4	57	53.45072	-6.22621
1	2	24240011	5/20/2026 21:56	<i>Pipistrellus pygmaeus</i>	22	57.2	67.5	56.5	3	80	53.45072	-6.22621
1	2	24240014	5/20/2026 22:24	<i>Pipistrellus pipistrellus</i>	25	47.5	62	46.5	3	90	53.45073	-6.22622
1	2	24240015	5/20/2026 22:28	<i>Pipistrellus pygmaeus</i>	21	56.6	66.2	55.7	5	160	53.45073	-6.22623
1	2	24240016	5/20/2026 22:32	<i>Pipistrellus pipistrellus</i>	26	42.6	51.6	41.9	6	185	53.45074	-6.22624
1	2	24240017	5/20/2026 22:37	<i>Pipistrellus pipistrellus</i>	21	51.3	67.3	49.7	3	60	53.45073	-6.22622
1	2	24240018_1	5/20/2026 22:40	<i>Pipistrellus pygmaeus</i>	24	59.4	79.9	58.2	4	70	53.45074	-6.22621
1	2	24240019	5/20/2026 22:52	<i>Pipistrellus pygmaeus</i>	18	58.4	72.1	57.4	3	170	53.45074	-6.22623
1	2	24240021_1	5/20/2026 22:56	<i>Pipistrellus pygmaeus</i>	6	53.3	65.3	51.8	3	246	53.45074	-6.2262
1	2	24240022	5/20/2026 22:57	<i>Pipistrellus pygmaeus</i>	20	52.1	63.5	51.4	5	86	53.45074	-6.2262
1	2	24240023	5/20/2026 22:57	<i>Pipistrellus pygmaeus</i>	24	51.5	68.7	50.8	5	150	53.45074	-6.2262
1	2	24240024	5/20/2026 22:59	<i>Pipistrellus pipistrellus</i>	3	48.3	53.5	47.6	3.6	134	53.45072	-6.22622
1	2	24240025	5/20/2026 22:59	<i>Pipistrellus pygmaeus</i>	14	67.7	81.8	63.6	3	90	53.45072	-6.22622
1	2	24240026	5/20/2026 22:59	<i>Pipistrellus pygmaeus</i>	17	62	82.3	57	2	90	53.45072	-6.22623
1	2	24240027	5/20/2026 22:59	<i>Pipistrellus pipistrellus</i>	37	49.2	65.9	47.6	3	90	53.45072	-6.22622
1	2	24240028	5/20/2026 23:00	<i>Pipistrellus pygmaeus</i>	13	59.1	81.5	57.7	4	90	53.45072	-6.22622
1	2	24240029_1	5/20/2026 23:00	<i>Pipistrellus pygmaeus</i>	15	59.9	67.2	58.7	2	84	53.45072	-6.22621
1	2	24240030	5/20/2026 23:00	<i>Pipistrellus pygmaeus</i>	21	60.4	72.6	59	3	80	53.45072	-6.22621
1	2	24240031	5/20/2026 23:01	<i>Pipistrellus pygmaeus</i>	14	58.8	79.1	57.9	4	170	53.45072	-6.22624
1	2	24240032	5/20/2026 23:01	<i>Pipistrellus pygmaeus</i>	27	59.1	75.5	58.2	3	90	53.45072	-6.22623
1	2	24240033	5/20/2026 23:03	<i>Pipistrellus pygmaeus</i>	39	57.7	76.8	56.3	4	90	53.45074	-6.22626
1	2	24240035	5/20/2026 23:08	<i>Pipistrellus pipistrellus</i>	26	40.1	46.7	39.1	6	100	53.45075	-6.22625
1	2	24240036	5/20/2026 23:08	<i>Pipistrellus nathusii</i>	15	39.6	40.5	39.1	6	110	53.45075	-6.22623
1	2	24240037	5/20/2026 23:08	<i>Pipistrellus pygmaeus</i>	13	54.5	71.7	53	7	216	53.45075	-6.22624
1	2	24240038	5/20/2026 23:08	<i>Pipistrellus pygmaeus</i>	20	56.9	74.8	53.9	4	83	53.45075	-6.22623
1	2	24240039	5/20/2026 23:09	<i>Pipistrellus pygmaeus</i>	28	56.8	72.3	54.5	4	80	53.45075	-6.22624
1	2	24240040	5/20/2026 23:10	<i>Pipistrellus pygmaeus</i>	20	57	77.9	54.8	4	85	53.45074	-6.22624
1	2	24240041	5/20/2026 23:13	<i>Pipistrellus pipistrellus</i>	12	47.1	65.7	46.2	5	217	53.45074	-6.22624
2	1	24640000	6/25/2026 21:41	<i>Nyctalus leisleri</i>	10	20.5	22.2	18.6	20	309	53.45072	-6.22628
2	1	24640001	6/25/2026 21:41	<i>Nyctalus leisleri</i>	6	20.7	23	18.6	16.7	357	53.45073	-6.22629
2	1	24640002	6/25/2026 21:45	<i>Nyctalus leisleri</i>	8	22.1	22.8	21.4	20	627	53.45077	-6.22626
2	1	24640003	6/25/2026 21:57	<i>Nyctalus leisleri</i>	8	21.2	22.6	19.9	18	256	53.45074	-6.22626
2	1	24640004	6/25/2026 21:58	<i>Nyctalus leisleri</i>	3	21.4	22	19.1	13.9	398	53.45072	-6.22627
2	1	24640005	6/25/2026 21:58	<i>Nyctalus leisleri</i>	9	21	22	19.9	18	220	53.45071	-6.22627
2	1	24640006	6/25/2026 21:58	<i>Nyctalus leisleri</i>	13	22.2	23.3	20.9	18	231	53.45071	-6.22627
2	1	24640007	6/25/2026 21:58	<i>Nyctalus leisleri</i>	5	21.2	21.8	20.3	14.5	398	53.45073	-6.22626

Survey	VP	Recording	Timestamp	Species Text	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Latitude [WGS84]	Longitude [WGS84]
2	1	24640008	6/25/2026 21:59	<i>Nyctalus leisleri</i>	10	22.3	23.3	21.2	12	217	53.45073	-6.22627
2	1	24640009	6/25/2026 21:59	<i>Nyctalus leisleri</i>	10	21	21.8	20	14	370	53.45073	-6.22627
2	1	24640010_1	6/25/2026 21:59	<i>Nyctalus leisleri</i>	6	21.9	22.7	20.8	10.6	342	53.45073	-6.22627
2	1	24640011_1	6/25/2026 21:59	<i>Nyctalus leisleri</i>	6	20.6	21.2	19.1	13.4	328	53.45073	-6.22627
2	1	24640012_1	6/25/2026 22:00	<i>Nyctalus leisleri</i>	4	21.3	21.8	19.8	10.5	492	53.45074	-6.22628
2	1	24640015	6/25/2026 22:06	<i>Nyctalus leisleri</i>	8	22.9	23.9	21.4	15	302	53.45075	-6.22627
2	1	24640016_1	6/25/2026 22:11	<i>Nyctalus leisleri</i>	9	21.3	22.3	19.5	16	222	53.45073	-6.22628
2	1	24640017	6/25/2026 22:13	<i>Nyctalus leisleri</i>	6	21.4	22.6	19.4	14.2	274	53.45073	-6.22626
2	1	24640020	6/25/2026 22:14	<i>Nyctalus leisleri</i>	4	22.3	22.7	21.5	14	473	53.45074	-6.22625
2	1	24640021	6/25/2026 22:14	<i>Nyctalus leisleri</i>	6	21.2	21.8	19.8	10.9	277	53.45075	-6.22626
2	1	24640022	6/25/2026 22:14	<i>Nyctalus leisleri</i>	5	21.8	22.6	19.6	10.8	689	53.45075	-6.22627
2	1	24640023	6/25/2026 22:14	<i>Nyctalus leisleri</i>	11	22.6	23.8	20.8	12	286	53.45075	-6.22627
2	1	24640024_1	6/25/2026 22:15	<i>Nyctalus leisleri</i>	5	21.5	22.7	20	16.7	385	53.45073	-6.22626
2	1	24640025_1	6/25/2026 22:21	<i>Nyctalus leisleri</i>	3	21.4	21.6	20	8.9	600	53.45073	-6.22627
2	1	24640028	6/25/2026 22:26	<i>Nyctalus leisleri</i>	5	21.5	21.8	20	18.3	433	53.45074	-6.22627
2	1	24640029	6/25/2026 22:26	<i>Nyctalus leisleri</i>	14	22	22.6	21	20	415	53.45074	-6.22628
2	1	24640030	6/25/2026 22:29	<i>Nyctalus leisleri</i>	1	21.4	21.4	19.5	21.3	0	53.45073	-6.22626
2	1	24640031	6/25/2026 22:29	<i>Nyctalus leisleri</i>	4	21	22.3	19.1	16.9	433	53.45073	-6.22627
2	1	24640032	6/25/2026 22:30	<i>Nyctalus leisleri</i>	20	24.2	26.4	23.1	10	180	53.45074	-6.22628
2	1	24640033_1	6/25/2026 22:35	<i>Pipistrellus pygmaeus</i>	4	56.3	58.6	55.5	5.7	123	53.45076	-6.22628
2	1	24640034_1	6/25/2026 22:35	<i>Pipistrellus pygmaeus</i>	4	59.3	66.3	58.4	2	119	53.45076	-6.22628
2	1	24640036	6/25/2026 22:47	<i>Nyctalus leisleri</i>	9	22.3	23.3	20.9	15.1	269	53.45073	-6.22626
2	1	24640037	6/25/2026 22:48	<i>Nyctalus leisleri</i>	8	22.1	24.1	18.4	10.9	263	53.45072	-6.22628
2	1	24640038	6/25/2026 22:50	<i>Nyctalus leisleri</i>	6	21.3	21.7	19.6	20	269	53.45074	-6.22626
2	1	24640039	6/25/2026 22:51	<i>Nyctalus leisleri</i>	3	21.8	22.1	20.1	12.4	559	53.45074	-6.22624
2	1	24640040_1	6/25/2026 22:53	<i>Nyctalus leisleri</i>	7	21	21.6	19.7	13.8	283	53.45074	-6.22625
2	1	24640041	6/25/2026 22:53	<i>Nyctalus leisleri</i>	6	20.6	20.9	19.4	20	384	53.45074	-6.22626
2	1	24640042	6/25/2026 23:03	<i>Nyctalus leisleri</i>	2	22.5	22.7	21.6	14.7	769	53.45076	-6.22626
2	1	24640043	6/25/2026 23:03	<i>Nyctalus leisleri</i>	2	21.8	21.9	20.6	12	758	53.45076	-6.22625
2	1	24640044	6/25/2026 23:03	<i>Nyctalus leisleri</i>	6	22.5	22.9	21	10.8	499	53.45076	-6.22625
2	1	24640045	6/25/2026 23:03	<i>Nyctalus leisleri</i>	8	21	21.5	20.2	13.7	801	53.45077	-6.22626
2	1	24640046	6/25/2026 23:04	<i>Nyctalus leisleri</i>	6	24.3	25.6	22.9	7.6	306	53.45075	-6.22626
2	1	24640047	6/25/2026 23:04	<i>Nyctalus leisleri</i>	5	22.2	23	21.2	13.1	524	53.45076	-6.22626
2	1	24640048	6/25/2026 23:04	<i>Nyctalus leisleri</i>	5	20.6	21.2	19.3	20	492	53.45076	-6.22626
2	1	24640049	6/25/2026 23:04	<i>Nyctalus leisleri</i>	2	20.6	20.8	19.9	4.3	1133	53.45076	-6.22627
2	1	24640050	6/25/2026 23:05	<i>Nyctalus leisleri</i>	6	20.5	20.8	18.9	20	591	53.45075	-6.22627
2	1	24640051	6/25/2026 23:05	<i>Nyctalus leisleri</i>	7	21.9	22.7	20.4	15.7	312	53.45076	-6.22627
2	1	24640052	6/25/2026 23:07	<i>Pipistrellus pipistrellus</i>	38	40.2	45.6	39.1	6	105	53.45075	-6.22626
2	1	24640053_1	6/25/2026 23:08	<i>Pipistrellus pipistrellus</i>	6	46.7	49.1	45.6	6	100	53.45075	-6.22627
2	1	24640054	6/25/2026 23:09	<i>Pipistrellus pipistrellus</i>	15	46.9	56.4	45.6	7	225	53.45075	-6.22627
2	1	24640055	6/25/2026 23:10	<i>Pipistrellus pipistrellus</i>	45	43.4	54.6	42	6	100	53.45075	-6.22625
2	1	24640056_1	6/25/2026 23:10	<i>Pipistrellus pipistrellus</i>	3	22.4	23.1	20.9	15.3	945	53.45074	-6.22627
2	1	24640056_2	6/25/2026 23:10	<i>Nyctalus leisleri</i>	4	21.9	22.5	20.1	17.3	854	53.45074	-6.22627

Survey	VP	Recording	Timestamp	Species Text	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Latitude [WGS84]	Longitude [WGS84]
2	1	24640056_3	6/25/2026 23:10	<i>Nyctalus leisleri</i>	3	21.9	22.5	20.3	17.3	853	53.45074	-6.22627
2	1	24640057	6/25/2026 23:14	<i>Nyctalus leisleri</i>	2	22.3	22.9	20.8	14.1	1142	53.45075	-6.22625
2	1	24640058	6/25/2026 23:14	<i>Nyctalus leisleri</i>	6	21.5	23.3	19.5	13.7	513	53.45075	-6.22624
2	1	24640059	6/25/2026 23:14	<i>Nyctalus leisleri</i>	3	24	25.1	21.3	11.2	509	53.45075	-6.22623
2	1	24640060	6/25/2026 23:16	<i>Pipistrellus pipistrellus</i>	20	46.2	49.3	45.5	7	200	53.45076	-6.22625
2	1	24640061	6/25/2026 23:18	<i>Pipistrellus pipistrellus</i>	25	44	45.4	42.8	10	120	53.45074	-6.22628
2	1	24640062_1	6/25/2026 23:19	<i>Pipistrellus pipistrellus</i>	3	22.1	23.4	20.3	12.1	484	53.45076	-6.22625
2	1	24640062_2	6/25/2026 23:19	<i>Pipistrellus pipistrellus</i>	3	21.8	22.3	19.5	12.8	969	53.45076	-6.22625
2	1	24640063_1	6/25/2026 23:19	<i>Nyctalus leisleri</i>	5	20.8	21.2	19.9	16.4	748	53.45076	-6.22624
2	1	24640064	6/25/2026 23:19	<i>Nyctalus leisleri</i>	3	20.5	21	18.6	10.5	533	53.45076	-6.22624
2	1	24640065	6/25/2026 23:23	<i>Pipistrellus pygmaeus</i>	27	54.3	56	53.6	7	190	53.45077	-6.22625
2	1	24640066	6/25/2026 23:31	<i>Pipistrellus pygmaeus</i>	4	82.7	87.9	81.8	5.3	725	53.45075	-6.22626
2	1	24640067_1	6/25/2026 23:31	<i>Pipistrellus pygmaeus</i>	16	53.7	54.1	52.9	9	280	53.45075	-6.22626
2	1	24640068	6/25/2026 23:33	<i>Nyctalus leisleri</i>	4	22.8	23.6	21.1	17.9	376	53.45075	-6.22626
2	1	24640070	6/25/2026 23:39	<i>Pipistrellus pygmaeus</i>	21	53.9	56.5	53.3	6	100	53.45075	-6.22629
2	1	24640072	6/25/2026 23:42	<i>Nyctalus leisleri</i>	7	24.1	25.2	22.7	9.2	566	53.45075	-6.22628
2	1	24640073	6/25/2026 23:47	<i>Nyctalus leisleri</i>	3	22.5	23.1	21.1	12.3	851	53.45073	-6.22627
2	1	24640074_1	6/25/2026 23:47	<i>Pipistrellus pipistrellus</i>	24	42.8	46.9	41.6	6	100	53.45073	-6.22627
2	1	24640074_2	6/25/2026 23:47	<i>Nyctalus leisleri</i>	4	22.2	23.4	20.3	14.7	855	53.45073	-6.22627
2	1	24640075_1	6/25/2026 23:47	<i>Nyctalus leisleri</i>	4	22.8	23.7	21.4	15.7	742	53.45072	-6.2263
2	1	24640076_1	6/25/2026 23:48	<i>Pipistrellus pipistrellus</i>	10	43.2	44	41.7	9	100	53.45073	-6.22627
2	1	24640076_2	6/25/2026 23:48	<i>Nyctalus leisleri</i>	3	22.5	23.3	21.1	14.4	575	53.45073	-6.22627
2	1	24640077	6/25/2026 23:52	<i>Nyctalus leisleri</i>	2	22.9	24.2	21.4	13.6	451	53.45071	-6.22628
2	1	24640078_1	6/25/2026 23:53	<i>Pipistrellus pygmaeus</i>	16	56	57.8	55.4	5	90	53.45072	-6.22626
2	1	24640078_2	6/25/2026 23:53	<i>Nyctalus leisleri</i>	2	24	24.9	21.8	10.9	757	53.45072	-6.22626
2	1	24640079	6/25/2026 23:53	<i>Nyctalus leisleri</i>	2	23.6	24.4	22.9	12.3	895	53.45072	-6.22626
2	1	24640080	6/25/2026 23:54	<i>Nyctalus leisleri</i>	9	24.7	27.1	23.4	10.5	151	53.45072	-6.22626
2	1	24640081	6/25/2026 23:55	<i>Pipistrellus pipistrellus</i>	21	44.2	50.1	43.1	5	100	53.45072	-6.22627
2	2	24240012	6/25/2026 22:31	<i>Nyctalus leisleri</i>	15	24.1	27.2	23.2	13	227	53.45073	-6.22624
2	2	24240000	6/25/2026 21:46	<i>Nyctalus leisleri</i>	10	22	22.8	21.3	20	407	53.45072	-6.22624
2	2	24240001	6/25/2026 21:59	<i>Nyctalus leisleri</i>	16	22	23.4	20.1	19	220	53.45068	-6.22629
2	2	24240002	6/25/2026 21:59	<i>Nyctalus leisleri</i>	9	21.3	22.3	20.2	17	330	53.45069	-6.22628
2	2	24240003	6/25/2026 21:59	<i>Nyctalus leisleri</i>	13	21.8	22.9	20.4	18	214	53.45069	-6.22626
2	2	24240004	6/25/2026 21:59	<i>Nyctalus leisleri</i>	9	20.8	21.6	19.8	17	350	53.45069	-6.22625
2	2	24240005	6/25/2026 22:12	<i>Nyctalus leisleri</i>	9	21.5	22.4	20	16	236	53.45074	-6.22623
2	2	24240006	6/25/2026 22:15	<i>Nyctalus leisleri</i>	5	21.7	23.9	19.2	18.5	348	53.45073	-6.22624
2	2	24240007	6/25/2026 22:15	<i>Nyctalus leisleri</i>	5	21	21.3	19.9	13	360	53.45073	-6.22623
2	2	24240008	6/25/2026 22:25	<i>Nyctalus leisleri</i>	2	18	18.4	12	4.8	0	53.45074	-6.22625
2	2	24240010	6/25/2026 22:27	<i>Nyctalus leisleri</i>	5	22	22.4	20.6	20	405	53.45074	-6.22623
2	2	24240011	6/25/2026 22:27	<i>Nyctalus leisleri</i>	16	22.2	22.9	21.3	19	410	53.45074	-6.22623
2	2	24240014_1	6/25/2026 22:33	<i>Nyctalus leisleri</i>	4	21.3	21.8	20.3	13.9	363	53.45072	-6.22622
2	2	24240016_1	6/25/2026 22:35	<i>Pipistrellus pygmaeus</i>	5	56.4	58.3	55.5	6.3	105	53.45072	-6.22623
2	2	24240017_1	6/25/2026 22:36	<i>Pipistrellus pygmaeus</i>	7	59.4	66.2	58.3	2	90	53.45072	-6.22623

Survey	VP	Recording	Timestamp	Species Text	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Latitude [WGS84]	Longitude [WGS84]
2	2	24240018	6/25/2026 22:49	<i>Nyctalus leisleri</i>	4	21.7	22.8	19.7	11.9	369	53.45074	-6.22619
2	2	24240019	6/25/2026 22:49	<i>Nyctalus leisleri</i>	7	21.3	21.9	18.6	20	300	53.45074	-6.22619
2	2	24240020	6/25/2026 22:50	<i>Nyctalus leisleri</i>	7	22.3	22.9	21.2	20	477	53.45074	-6.22623
2	2	24240021	6/25/2026 22:50	<i>Nyctalus leisleri</i>	4	22.8	23.9	21.4	18.4	261	53.45074	-6.22622
2	2	24240022_1	6/25/2026 22:54	<i>Nyctalus leisleri</i>	8	21.1	21.8	20.1	20	311	53.45073	-6.22624
2	2	24240023	6/25/2026 23:04	<i>Nyctalus leisleri</i>	5	22	22.4	21.4	10.1	757	53.45075	-6.22622
2	2	24240024	6/25/2026 23:04	<i>Nyctalus leisleri</i>	4	22.6	23.6	20.5	12	455	53.45075	-6.22622
2	2	24240025	6/25/2026 23:04	<i>Nyctalus leisleri</i>	4	21.1	21.8	20.2	14.8	469	53.45075	-6.22622
2	2	24240026	6/25/2026 23:04	<i>Nyctalus leisleri</i>	8	20.5	21.1	19.3	20	505	53.45075	-6.22622
2	2	24240027	6/25/2026 23:05	<i>Nyctalus leisleri</i>	4	24.5	25.5	22.3	8.8	603	53.45075	-6.2262
2	2	24240028	6/25/2026 23:06	<i>Nyctalus leisleri</i>	4	20.6	20.9	18.9	20	556	53.45075	-6.22622
2	2	24240029	6/25/2026 23:06	<i>Nyctalus leisleri</i>	8	21.3	21.8	20.2	13.4	412	53.45075	-6.22623
2	2	24240030	6/25/2026 23:08	<i>Pipistrellus pipistrellus</i>	27	39.7	44.7	38.9	6	105	53.45074	-6.22622
2	2	24240031	6/25/2026 23:09	<i>Pipistrellus pipistrellus</i>	12	46.7	56.2	45.5	7	217	53.45075	-6.22622
2	2	24240032	6/25/2026 23:11	<i>Pipistrellus pipistrellus</i>	48	42.8	56.6	41.9	6	100	53.45075	-6.22622
2	2	24240033	6/25/2026 23:15	<i>Nyctalus leisleri</i>	2	22.3	22.9	21.6	14.4	1142	53.45075	-6.2262
2	2	24240034	6/25/2026 23:15	<i>Nyctalus leisleri</i>	5	22.5	23.2	21.8	15	628	53.45075	-6.22619
2	2	24240035	6/25/2026 23:15	<i>Nyctalus leisleri</i>	4	23.2	25.4	19.2	10.3	391	53.45076	-6.2262
2	2	24240036	6/25/2026 23:17	<i>Pipistrellus pipistrellus</i>	22	46.4	50.4	45.7	7	200	53.45076	-6.22622
2	2	24240037	6/25/2026 23:23	<i>Pipistrellus pygmaeus</i>	18	54.2	55	53.5	6	190	53.45075	-6.22624
2	2	24240038_1	6/25/2026 23:32	<i>Pipistrellus pygmaeus</i>	10	53.6	54	52.8	7	280	53.45074	-6.22621
2	2	24240039	6/25/2026 23:40	<i>Pipistrellus pygmaeus</i>	20	54.2	58.8	53.5	7	100	53.45073	-6.22624
2	2	24240040	6/25/2026 23:43	<i>Nyctalus leisleri</i>	4	23.9	25.2	22.6	8.9	535	53.45074	-6.22626
2	2	24240041	6/25/2026 23:48	<i>Pipistrellus pipistrellus</i>	14	43.7	48	41.9	5	95	53.45076	-6.22624
2	2	24240042	6/25/2026 23:50	<i>Nyctalus leisleri</i>	3	21.9	22.1	20.8	11	154	53.45072	-6.22625
2	2	24240043	6/25/2026 23:54	<i>Pipistrellus pygmaeus</i>	11	55.8	57	55.1	5	301	53.45072	-6.22624
2	2	24240044	6/25/2026 23:54	<i>Nyctalus leisleri</i>	2	21.6	21.9	19.5	17.9	219	53.45072	-6.22623
2	2	24240045	6/25/2026 23:54	<i>Nyctalus leisleri</i>	5	23	24.5	21.5	12.8	334	53.45072	-6.22624
2	2	24240046	6/25/2026 23:56	<i>Pipistrellus pipistrellus</i>	21	43.9	49.8	42.9	8	200	53.45072	-6.22623



About DNV

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Whether assessing a new ship design, optimizing the performance of a wind farm, analyzing sensor data from a gas pipeline or certifying a food company's supply chain, DNV enables its customers and their stakeholders to make critical decisions with confidence.

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