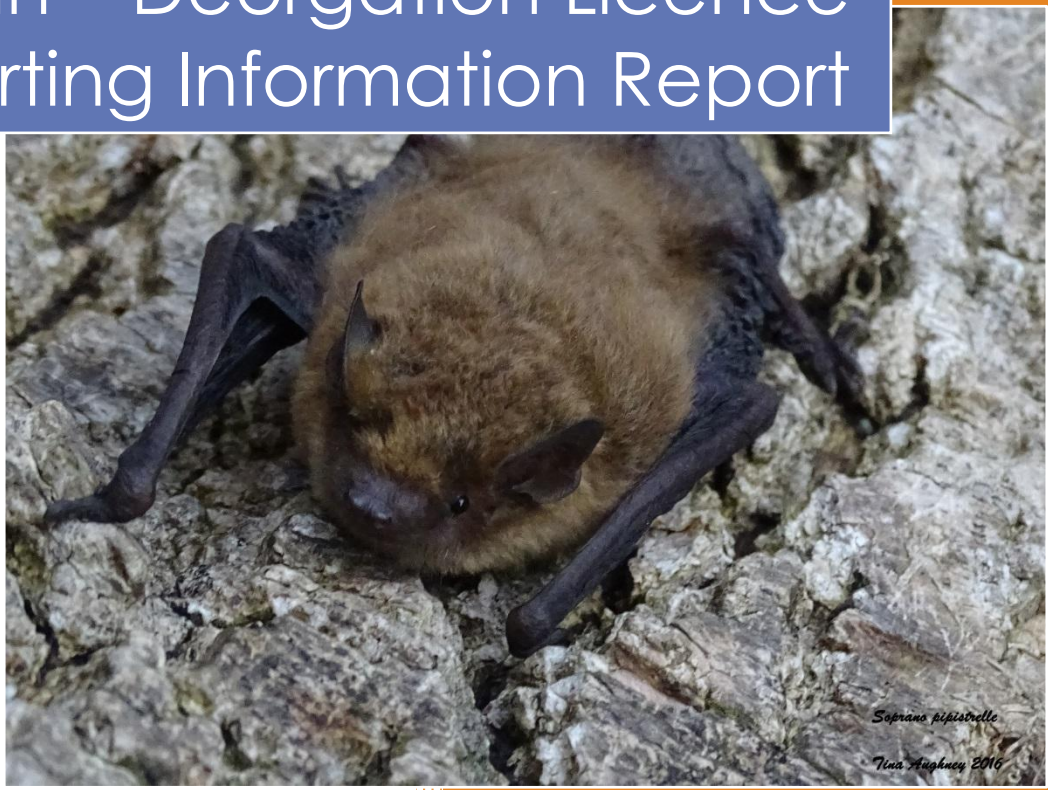
2026

Cornacassa, Monaghan Town, Co. Monaghan – Deorgation Licence Supporting Information Report



Bat Eco Services Limited

Bat Eco Services Limited, Ulex House, Drumheel, Lisduff, Virginia, Co. Cavan. A82 XW62.

Licensed Bat Specialist: Dr Tina Aughney [redacted]
NPWS licence C17/2023 (Licence to handle bats, expires 23rd January 2026);
NPWS licence 014/2026 (Licence to photograph/film bats, expires 31st December 2026);
NPWS licence DER/BAT 2026-119 (Survey licence, expires 31st December 2026).

Statement of Authority: Dr Aughney has worked as a Bat Specialist since 2000 and has undertaken extensive survey work for all Irish bat species including large scale development projects, road schemes, residential developments, wind farm developments and smaller projects in relation to building renovation or habitat enhancement. She was a monitoring co-ordinator and trainer for Bat Conservation Ireland for 20 years. She is a co-author of the 2014 publication *Irish Bats in the 21st Century.* This book received the 2015 CIEEM award for Information Sharing. Dr Aughney is a contributing author for the Atlas of Mammals in Ireland 2010-2015. She is a trained bat handler, bat ringer and radio-telemetry project manager. She is a member of the Nathusius' Pipistrelle Working Group and the Cavan Bat Group.

All analysis and reporting is completed by Dr Tina Aughney. Data collected and surveying is completed with the assistance of trained field assistants. Mr. Shaun Boyle and Ms. Eva Boyle (Field Assistants) operating under NPWS licence DER/BAT 2026-119 (Survey licence, expires 31st December 2026). Both field assistants have received in-house training to undertake all elements of bat surveying according to Collins (2023).

Client: *Traynor Environmental & Monaghan Co. Co.*

Project Name & Location: Cornacassa, Monaghan Town, Co. Monaghan

Report Revision History

Date of Issue	Draft Number	Issued To (process of issuing)
10th February 2025	V1	Prepared for NPWS Derogation Licence App.

Purpose

This document has been prepared as a Report for Monaghan Co. Co. & NPWS. Only the most up to-date report should be consulted. All previous drafts/reports are deemed redundant in relation to the named site. Bat Eco Service accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Carbon Footprint Policy

It is the policy of Bat Eco Services to provide documentation digitally to reduce carbon footprint. Printing of reports etc. is avoided, where possible.

Record Submission Policy

It is the policy of Bat Eco Services to submit all bat records to the NBDC database one-year post-surveying. This is to ensure that a high-level bat and mammal databases are available for future desktop reviews. This action will be automatically undertaken unless otherwise requested, where there is genuine justification.

Citation: Bat Eco Services (2026) Cornacassa, Monaghan Town, Co. Monaghan. Unpublished report prepared for Monaghan Co. Co – Derogation Licence Supporting Information Report.

10th February 2026

To whom it may concern:

The following is a report, to meet the application guidelines, to support the application for Derogation under the European Communities (Birds and Natural Habitats) Regulations 2011-2021.

On behalf of the client, Bat Eco Services Limited are applying for a derogation to undertake the demolition of three structures recorded as bat roosts:

- Building 1: bungalow recorded as a Maternity Roost for brown long-eared bats *Plecotus auritus*:
- Building 3: shed recorded as Day Roost for Common pipistrelle *Pipistrellus pipistrellus* (2 bats) and soprano pipistrelle *P. pygmaeus* (1 bat):
- Building 4: shed recorded as Day Roost for brown long-eared bats *Plecotus auritus*.

Citation: Bat Eco Services (2025) Bat Survey: Cornacassa, Monaghan Town, Co. Monaghan. Unpublished report prepared for Monaghan Co. Co. Unpublished Report.

To support the Derogation Tests, the following documents are also provided:

Citation: Monaghan Co. Co. (2026) Letter: Justification for the Granting of a Derogation Licnence. Prepared by the Housing Section, Monaghan Co. Co.

Citation: Alan Traynor Consulting Engineers Ltd. (2026) Structural Survey relating to 23.281F – Cornacassa at Clones Road, Monaghan prepared for Craftstudio Architecture.

Additional information is also provided in relation to bat surveys previously undertaken:

- Bat Eco Services Limited CV

Additional information is also provided as follows:

- Landscape Design

If you require any further information, please do not hesitate to contact me.

Yours sincerely,

Dr Tina Aughney

Contents

1. Introduction

1.1 Proposed Works

The development will consist of the following:

1. Demolition of a derelict bungalow (H18 R681), boundary walls, associated outbuildings and agricultural sheds.

2. Erection of 70no. housing units comprising of:

    - 1no. 5 bed semi-detached part one storey, part two storey unit
    - 19no. 2 bed semi-detached/ terraced two storey units
    - 32no. 3 bed semi-detached/ terraced two storey units
    - 2no. 4 bed semi-detached two storey units
    - 15no. 2 bed semi-detached/ terraced bungalows
    - 1no. 5 bed detached bungalow

3. Proposed new access road from the public road, car parking and bicycle parking provision, boundary fencing, hard and soft site landscaping works, new playground, public lighting, new pumping station, connection to public sewer, watermain and surface water and all associated site works.

Figure 1: Layout of proposed development Cornacassa, Monaghan Town.

1.2 Ecological Team

In preparation for this report, surveys were undertaken since 2025. These surveys were completed by Bat Eco Services Ltd., under the guidance of the principal bat specialist, Dr Tina Aughney.

Dr Aughney has worked as a Bat Specialist since 2000 and has undertaken extensive survey work for all Irish bat species including large scale development projects, road schemes, residential developments, wind farm developments and smaller projects in relation to building renovation or habitat enhancement. She was a monitoring co-ordinator and trainer for Bat Conservation Ireland for 20 years. She is a co-author of the 2014 publication *Irish Bats in the 21st Century.* This book received the 2015 CIEEM award for Information Sharing. Dr Aughney is a contributing author for the Atlas of Mammals in Ireland 2010-2015. She is a trained bat handler, bat ringer and radio-telemetry project manager. She is a member of the Nathusius' Pipistrelle Working Group and the Cavan Bat Group.

All analysis and reporting is completed by Dr Tina Aughney. Data collected and surveying is completed with the assistance of trained field assistants: Mr. Shaun Boyle and Ms. Eva Boyle (Licenced Field Assistants). Both field assistants have received in-house training to undertake all elements of bat surveying according to Collins (2023).

2. Back Ground Information

2.1 Project Location

The proposed development is located on lands north of the Clones Road, Monaghan Town, Co. Monaghan. Currently there is a large agricultural field with treeline and hedgerow boundaries. Adjacent to the field is a residential access to existing bungalow along with associated buildings. There are several agricultural sheds to the rear of the bungalow.

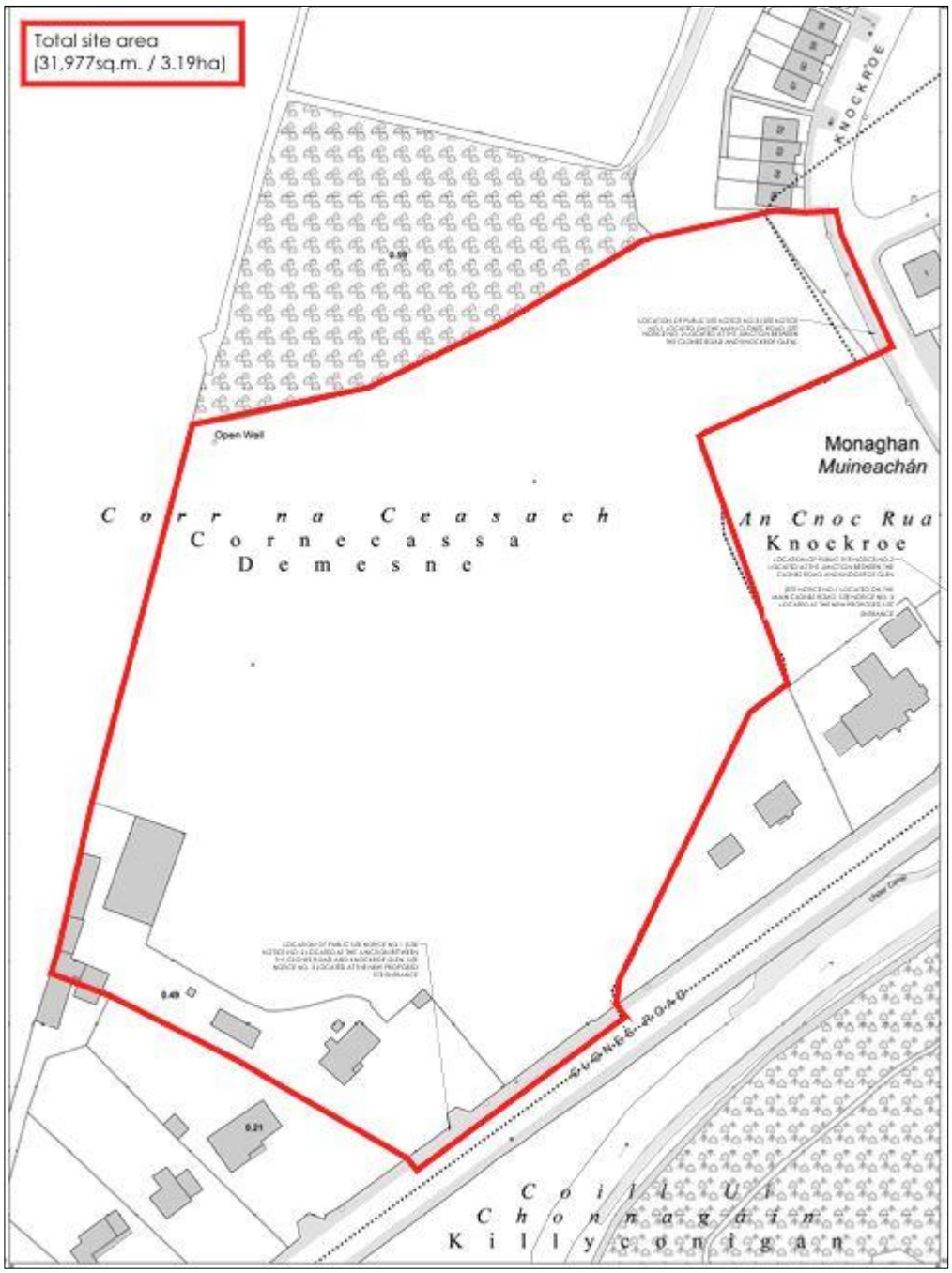


Figure 2a: Red line boundary of proposed development Cornacassa, Monaghan Town.

2.2 Proposed Works

The proposed works (See Section 1.1) will result in the demolition of three structures recorded as bat roosts:

- Building 1: bungalow recorded as a Maternity Roost for brown long-eared bats *Plecotus auritus*:
- Building 3: shed recorded as Day Roost for Common pipistrelle *Pipistrellus pipistrellus* (2 bats) and soprano pipistrelle *P. pygmaeus* (1 bat):
- Building 4: shed recorded as Day Roost for brown long-eared bats *Plecotus auritus*.

Table 1: Buildings proposed to be demolished.

Building No.	Description	Bat Value
Bungalow (Building 1)	Modern building with tiled roof.	Moderate value – loft space. Bat droppings present.
Shed A (Building 3)	Large shed constructed from concrete block and corrugated iron sheets. Boards on sections of the roof. Timber partition walls.	Low – large open space, open at either end of the structure (a lot of light egress), boards on sections of the roof may provide roosting space. No evidence of bat usage.
Shed B (Building 4)	Concrete block shed with iron corrugate roof. Boards on sections of the roof, roof felt and chicken wire.	Low – boards on sections of the roof may provide roosting space. No evidence of bat usage.

Figure 2b: Location of buildings subject of derogation application, Cornacassa, Monaghan Town, Co. Monaghan.

3. Ecological Surveys

3.1 Bat Surveys

The bat surveys were completed in 2025 according to the following documents:

- Collins, J. (Editor) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). Bat Conservation Trust, London
- Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland (Version 1: Kelleher & Marnell, 2006).

Collins (2023) was the principal document used to provide guidance in relation to bat survey effort required. Marnell *et al.* (2022) is referred to for guidance in relation to survey guidance (timing and survey design), derogation licences and mitigation measures. The results of these surveys are described in Section 4.

3.2 Desktop Review

3.2.1 Bat Conservation Ireland Database

Bat Conservation Ireland acts as the central depository for bat records for the Republic of Ireland. Its' bat database is comprised of >100,000 bat records. The database primarily contains bat records from the following datasets:

- Irish Bat Monitoring Programme
- BATLAS 2020 & 2010
- Ad Hoc Bat Records submitted by ecologist bat groups etc.

The Bat Conservation Ireland database was accessed on 25th September 2025 to collated bat records for a 1km radius of the proposed development site (H6581633298).

An important caveat to note is that the BCIreland dataset is dependent on bat records being regularly submitted to BCIreland and/or NBDC. Therefore, the absence of information does not necessarily imply that there are no bats or bat roosts present in the search area.

A total of two geo-referenced bat records were available for the 1km search area. The number of records for each of the bat species is listed in the table below and this includes two bat detector records.

Table 2a: Bat Records (Source: Bat Conservation Ireland).

Bat species	No. of records		Bat species	No. of records	
	Roost	Detector		Roost	Detector
Common pipistrelle	0	0	Soprano pipistrelle	0	1
Nathusius' pipistrelle	0	0	Leisler's bat	0	0
Daubenton's bat	0	1	Whiskered bat	0	0
Brown long-eared bat	0	0	Natterer's bat	0	0
Pipistrelle spp	0	0	Myotis spp	0	0

3.2.2 Bat Conservation Landscape Favourability

Bat Conservation Ireland (BCIreland) produced a landscape conservation guide for Irish bat species using their database of species records collated during the 2000 – 2009 survey seasons. An analysis of the habitat and landscape associations of all bat species deemed resident in Ireland was undertaken and reported in Lundy *et al*. (2011). This model was queried on 25th September 2025.

The geographical area suitable for individual species was used to identify the core favourable areas of each species. This was produced as a GIS layer for local authorities and planners to provide a guide for the consideration of bat conservation. The island is divided into 5km squares and the landscape favourability (expressed as a percentage, the higher the value, the greater the favourability) of each 5km square for each species of bat was modelled. A caveat is attached to the model: the model is based on records held on the Bat Conservation Ireland database, while core areas have been identified, areas outside the core area should not be discounted as unimportant as bats are a landscape species and can travel many kilometres between roosts and foraging areas nightly and seasonally. This model was used as part of the desktop study for this report.

The exact percentage favourability of each of the squares for all species of bats recorded is presented in the table below.

Table 2b: Percentage Landscape Favourability for each 5km for Irish bat species (Lundy *et al.*, 2011).

Square No.	All bat spp.	SP	CP	Nath Pip	Leis	BLE	Daub	Natt	Whis
1	36%	53%	54%	25%	53%	42%	47%	30%	18%

Note: SP = soprano pipistrelle, CP = common pipistrelle, Nath Pip = Nathusius' pipistrelle, Leis = Leisler's bat, BLE = brown long-eared bat, Daub = Daubenton's bat, Natt = Natterer's bat, Whis = whiskered bat.

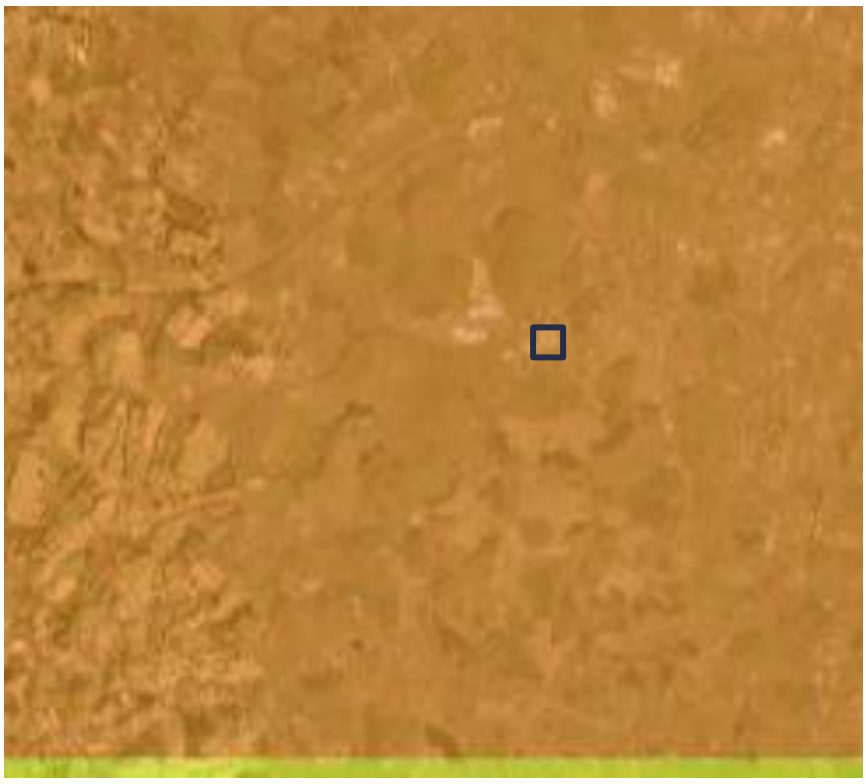


Figure 3a: Bat Conservation Ireland Landscape Favourability Model for 5km squares where the proposed development site is in County Monaghan (Source: Bat Conservation Ireland Landscape Model). Proposed development site is marked in Dark Blue Square.

3.3 Status of bat species recorded

The bat surveys undertaken in 2025 recorded three roosts in buildings proposed to be demolished:

- Building 1: bungalow recorded as a Maternity Roost for brown long-eared bats *Plecotus auritus*:
- Building 3: shed recorded as Day Roost for Common pipistrelle *Pipistrellus pipistrellus* (2 bats) and soprano pipistrelle *P. pygmaeus* (1 bat):
- Building 4: shed recorded as Day Roost for brown long-eared bats *Plecotus auritus*.

The status of these three bat species, with reference to roost types records in Co. Monaghan is as follows:

Table 2c: Bat Ecological Evaluation Results for Cornacassa, Co. Monaghan (Bat Eco Services results) according to referenced criteria.

Bat Species	Survey Results	Evaluation Value	Roost Evaluation
Brown long-eared bat *Plecotus auritus*	Maternity roost – Building 1	County Importance – County Monaghan	Conservation Significance - High (Marnell *et al.*, 2022) – Maternity sites of rarer species.
Brown long-eared bat *Plecotus auritus*	Day roost – Building 4	Local importance - Low	Conservation Significance - Low (Marnell *et al.*, 2022) – Maternity sites of rarer species.
Common pipistrelle *Pipistrellus pipistrellus*	Day roost – Building 3	Local importance - Low	Conservation Significance - Low (Marnell *et al.*, 2022) – day roost for common species.
Soprano pipistrelle *Pipistrellus pygmaeus*	Day roost – Building 3	Local importance - Low	Conservation Significance - Low (Marnell *et al.*, 2022) – day roost for common species.

The national status and county distribution of the three named bat species are presented below. Brown long-eared bats are less widespread than common bat species such as common pipistrelles and soprano pipistrelles and this is reflected in the distribution maps presented.

Brown long-eared bat

- Brown long-eared bat is an Annex IV bat species under the EU Habitats Directive. The status of this bat species is listed as Least Concern. The national brown long-eared bat population is considered to be stable (Aughney *et al.,* 2021).
- The modelled Core Area for brown long-eared bat is a relatively large area that covers much of the island of Ireland (49,929 km^2). The Bat Conservation Ireland Irish Landscape Model indicated that the brown long-eared bat habitat preference is for areas with broadleaf woodland and riparian habitats on a small scale of 0.5km emphasising the importance of local landscape features for this species (Roche *et al.,* 2014).
- The population estimates (2023 figures) indicates that population is between 65,200 and 102,000 individuals and this this represents a 5.18% increase compared to 2012 population estimates (Roche & Langton, 2024).

The overall trend for the national population of brown long-eared bat in Article 17 reporting (NPWS, 2019) is as follows:

- Range = Favourable
- Population = Favourable
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Stable

Principal concerns for brown long-eared bats are poorly known in Ireland, but those that are relevant for this survey area are as follows:

- Selection of maternity sites is limited to specific habitats;
- Lack of knowledge of winter roosts;
- Loss of woodland, scrub and hedgerows;
- Tree surgery and felling;
- Increasing urbanisation; and
- Light pollution.

The Co. Monaghan distribution of bat records for this species of bat (Source: www.biodiversityireland.ie) is presented in Figure 3b.

The nearest known brown long-eared bat maternity roost to the proposed development site is in Bellanode, Co. Monaghan, approximately 3km to the north-west. This is a large roost that is counted annually as part of the Irish Bat Monitoring Programme (managed by Bat Conservation Ireland).

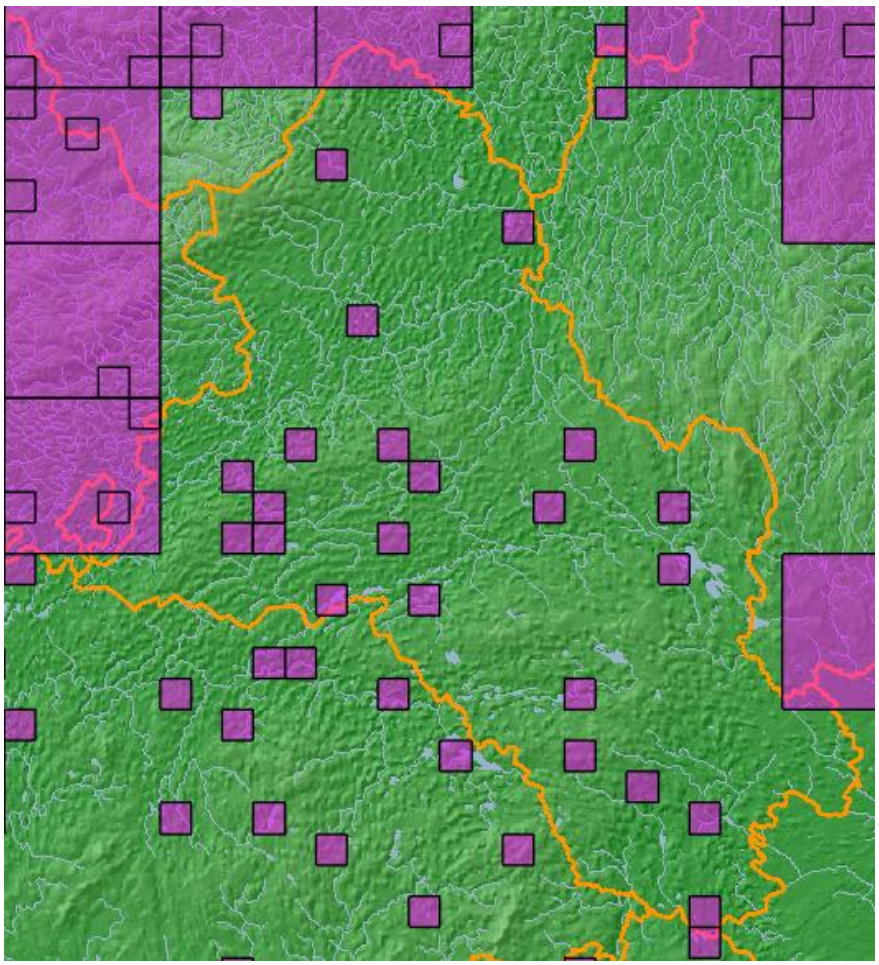


Figure 3b: Distribution of known brown long-eared bat records in Co. Monaghan.

Common pipistrelle

- Common pipistrelle is an Annex IV bat species under the EU Habitats Directive. The status of this bat species is listed as Least Concern. The national common pipistrelle population is considered to be significantly increasing trend (Aughney *et al.,* 2022).
- The modelled Core Area for common pipistrelle is a relatively large area that covers much of the island of Ireland (56,485km^2). The Bat Conservation Ireland Irish Landscape Model indicated that the Common pipistrelle selects areas with broadleaf woodland, riparian habitats and low density urbanization (<30%) (Roche *et al.,* 2014).
- The population estimates (2023 figures) indicates that population is between 1,074,000 and 2,416,500 individuals and this this represents a 75.4% increase compared to 2012 population estimates (Roche & Langton, 2024).

The overall trend for the national population of brown long-eared bat in Article 17 reporting (NPWS, 2019) is as follows:

- Range = Favourable
- Population = Favourable
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Stable

Principal concerns for Common pipistrelles in Ireland that are relevant for this survey area are as follows:

- Lack of knowledge of roosting requirements

- This species has complex habitat requirements in the immediate vicinity of roosts. Therefore, careful site-specific planning for this species is required in order to ensure all elements are maintained.
- Renovation or demolition of derelict buildings.
- Tree felling
- Increasing urbanisation (e.g. increase in lighting)

The Co. Monaghan distribution of bat records for this species of bat (Source: www.biodiversityireland.ie) is presented in Figure 3c.

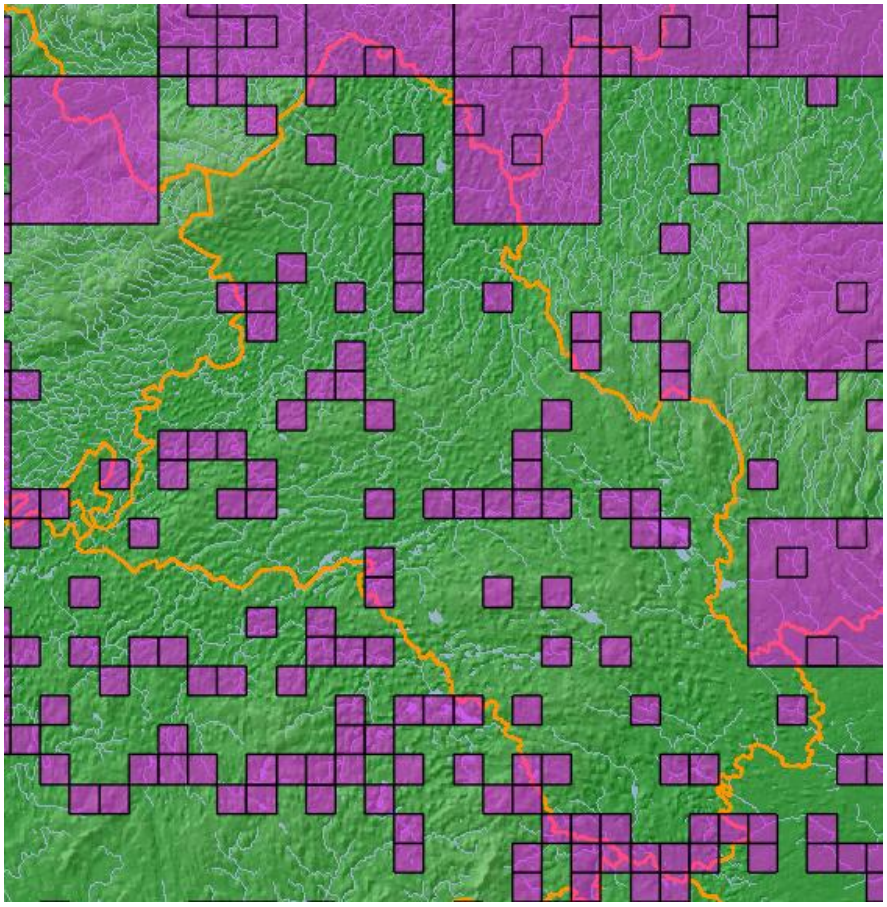


Figure 3c: Distribution of known Common pipistrelle bat records in Co. Monaghan.

Soprano pipistrelle

- Soprano pipistrelle is an Annex IV bat species under the EU Habitats Directive. The status of this bat species is listed as Least Concern. The national soprano pipistrelle population is considered to be significantly increasing trend (Aughney *et al.,* 2022).
- The modelled Core Area for soprano pipistrelle is a relatively large area that covers much of the island of Ireland (62,020km^2). The Bat Conservation Ireland Irish Landscape Model indicated that the soprano pipistrelle selects areas with broadleaf woodland, riparian habitats and low density urbanisation (Roche *et al.,* 2014).
- The population estimates (2023 figures) indicates that population is between 1,204,800 and 2,709,600 individuals and this this represents a 140.2% increase compared to 2012 population estimates (Roche & Langton, 2024).

The overall trend for the national population of brown long-eared bat in Article 17 reporting (NPWS, 2019) is as follows:

- Range = Favourable
- Population = Favourable
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Stable

Principal concerns for Soprano pipistrelles in Ireland that are relevant for this survey area are as follows:

- Lack of knowledge of roosts;
- Renovation or demolition of structures;
- Tree felling; and
- Increasing urbanisation (e.g. increase in lighting).

The Co. Monaghan distribution of bat records for this species of bat (Source: www.biodiversityireland.ie) is presented in Figure 3d.

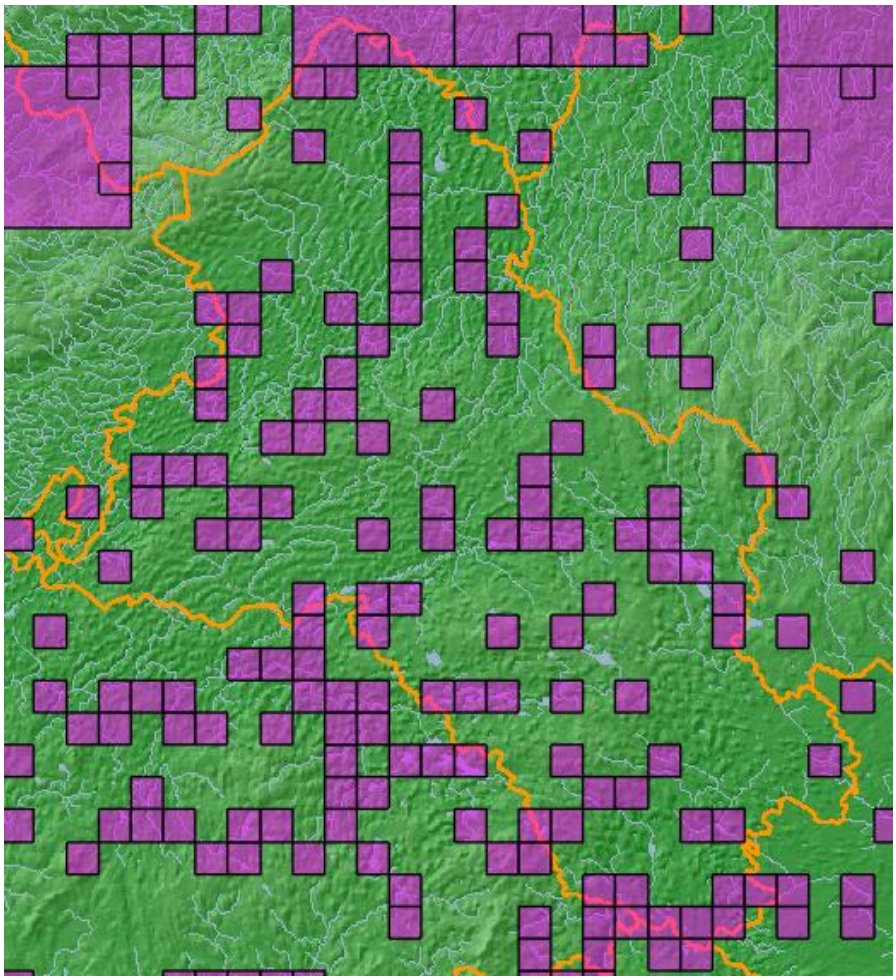


Figure 3d: Distribution of known Soprano pipistrelle bat records in Co. Monaghan.

3.4 Description of Survey Area

The proposed development is located on lands north of the Clones Road, Monaghan Town, Co. Monaghan. Currently there is a large agricultural field with treeline and hedgerow boundaries. Adjacent to the field is a residential access to existing bungalow (Building 1). There are several agricultural sheds to the rear of the bungalow (including Building 3 and Building 4).

3.5 Survey Methodology

Full details of the bat surveys completed are presented in the following report:

Citation: Bat Eco Services (2025) Bat Survey: Cornacassa, Monaghan Town, Co. Monaghan. Unpublished report prepared for Monaghan Co. Co. Unpublished Report.

The following is extracted from this report and relates to the surveys elements of the buildings that are the subject of this application.

The following handheld bat detectors were used:

- Surveyor 1: Anabat Walkabout Full Spectrum Bat Detector
- Surveyor 2: BatLogger M3 Full Spectrum Bat Detector
- Surveyor 3: Anabat Scout Full Spectrum Bat Detector

A Night Vision Aids (NVA) was used to support dusk surveys. The following NVA was used:

- A Guide TrackIR Pro25 thermal imagery scope
- FLIR Scion OTM255 thermal imaging camera
- HikMicro thermal imaging scope

3.5.1 Daytime Assessment

Buildings were inspected during the daytime for evidence of bat usage, where access was provided. Evidence of bat usage is in the form of actual bats (visible or audible), bat droppings, urine staining, grease marks (oily secretions from glands present on stonework) and claw marks. Inspections are undertaken visually with the aid of a strong torch beam (LED Lenser P14.2) and endoscope (General DC5660A Wet / Dry Scope). Buildings were assessed to determine their suitability as a bat roost and described using the parameters Negligible, Low, Moderate or High suitability in view of Table 2 from Marnell *et al.* (2022). The level of suitability informs the level of surveying and timing of surveys required based on Table 7.3 of Collins (2023) Surveying was carried out in the preferred months of May to September (Collins, 2023).

Table 3a: Building Bat Roost Classification System & Survey Effort (Adapted from Collins, 2023 and Marnell *et al.*, 2022).

Suitability Category	Description (examples of criteria)	Survey Effort (Timings)
Negligible	Building has no potential as a roost site Urban setting, heavily disturbed, building material unsuitable, building in poor condition etc.	No surveys required
Low	Building has a low potential as a roost site. No evidence of bat usage (e.g. droppings)	One dusk emergence survey
Moderate	Building with some suitable voids / crevices for roosting bats Some evidence of bat usage	At least one survey in May to August, minimum of two dusk emergence surveys

	Suitable foraging and commuting habitat present	
High	Building with many features deemed suitable for roosting bats Evidence of bat usage Largely undisturbed setting, rural, suitable foraging and commuting habitat, suitable roof void and building material	At least two surveys in May to August, with a minimum of three surveys

Inspections were carried out on 25th and 28th August 2025.

3.5.2 Dusk Bat Survey & Walking Transect

Dusk surveys of the buildings were completed on the 25th and 28th August 2025. Surveys of buildings were undertaken to record if there are any roosts located within the survey area. Post dusk survey on 28th August 2025, a walking transect of grounds proposed to be developed.

The survey started 15 minutes prior to sunset and was undertaken for 2 hours of surveying. Survey was completed during mild and dry weather conditions. Preparation for dusk survey started approximately 60 minutes prior to sunset and the following actions were undertaken:

- Re-inspection of building to be surveyed to determine surveyor and filming locations (external and internal (where possible) inspections).
- Internal inspection of building (applicable only to derelict structures and agricultural buildings) to document any visible bats or audible noises (bats are more audible prior to dusk activity).
- Positioning of filming equipment and surveyor.
- Completion of dusk survey.
- Post surveys, a repeat internal inspection of the surveyed building was undertaken (only applicable only to derelict structures and agricultural buildings) to document any visible bats within the structure.

All audio files recorded by full spectrum bat detectors were analysed using Wildlife Acoustics Kaleidoscope Pro and validation of bat records was completed by the principal bat surveyor prior to mapping. This data was then entered onto an Excel file for mapping. All filming was watched post surveys and any emerging bats were noted and compared to audio recordings also recorded by surveyors.

3.5.3 Static Surveillance

Static bat surveys involved leaving a static bat detector unit (with ultrasonic microphone) in a specific location, set to record for a specified period of time (i.e. a bat detector is left in the field, there is no observer present and bats which pass near enough to the monitoring unit are recorded and their calls are stored for analysis post surveying). The bat detector was effectively used as a bat activity data logger. This results in a far greater sampling effort over a shorter period of time and increases the opportunity to record less common bat species as the units are set to continuously record ultrasonic noise, when triggered, from 30 minutes for sunset to 30 minutes after sunrise. Bat detectors with ultrasonic microphones were used as the ultrasonic calls produced by bats cannot be heard by human hearing.

The microphone of the unit was positioned horizontally to reduce potential damage from rain. The static units deployed use Real Time recording as a technique to record bat echolocation calls and using specific software, the recorded calls are identified. It is these sonograms (2-d sound pictures) that are digitally stored on the SD card (or micro SD cards depending on the model) and downloaded

for analysis. These results are depicted on a graph showing the number of bat passes per species per night. Each bat pass does not correlate to an individual bat but is representative of bat activity levels. Some species such as the pipistrelles will continuously fly around a habitat and therefore it is likely that a series of bat passes within a similar time frame is one individual bat. On the other hand, Leisler's bats tend to travel through an area quickly and therefore an individual sequence or bat pass is more likely to be indicative of individual bats.

Recordings were analysed using Wildlife Acoustics Kaleidoscope Pro. Manual validation was undertaken by the principal bat specialist and the following rules were followed:

- Validation that the auto-id function was checked for at least 20% of *Pipistrellus* spp. and Leisler's bat calls apart from Nathusius' pipistrelle calls.
- All Nathusius' pipistrelles calls were manually verified. The reasoning for this is due to frequently misidentification of low 40kHz calls, by auto-id tools, as this species, which may in fact be low frequency common pipistrelle calls.
- All brown long-eared bat calls were manually verified. The reasoning for this due to frequently misidentification of social calls of *Pipistrellus* spp. frequently identified as this bat species.
- Manual verification of *Myotis* spp., where possible, to species level in order to increase the accuracy of the dataset. Where such calls cannot be identified to species level, they are reported as *Myotis* spp.
- Manual validation was undertaken for all "Unidentified" calls and for approximately 20% proportion of "Noise" calls.

Each audio file was noted as a bat pass to indicate level of bat activity for each species recorded. This was expressed as the average number of bat passes per survey night (no. of nights was the total number successful nights of deployment).

The following static unit model were deployed during this static bat detector survey:

Table 3b: Static Bat Detectors deployed during Static Bat Detector Surveys.

Static Unit Code	Bat Detector Type	Recording Function	Microphone
SM Mini Bat 1 Units	Wildlife Acoustics SongMeter Mini Bat 2 FS	Passive Full Spectrum	SMM-U2

Static surveillance consisted of seven static units within the proposed development area as presented on Figure 3, three units in buildings and four units on trees along linear habitats.

- 25th to 30th August 2025 (3 units, 5 nights) & 8th to 14th September 2025 (4 units, 6 nights)

Figure 4a: Locations of static units deployed in 2025 and walking transect route.

3.6 Survey Results

3.6.1 Daytime Inspection

The proposed development site was inspected to determine the roost potential of buildings located within the proposed development area.

Table 4c: Potential Bat Roost (PBR) trees.

Building No.	Description	Proposed Works	Bat Value
Bungalow (Building 1)	Modern building with tiled roof.	To be demolished	Moderate value – loft space. Bat droppings present.
Garage (Building 2)	shed constructed from concrete block and corrugated iron sheets.	To be demolished	Low – large space with loft (felt with chicken wire). No evidence of bat usage.
Shed A (Building 3)	Large shed constructed from concrete block and corrugated iron sheets. Boards on sections of the roof. Timber partition walls.	To be demolished	Low – large open space, open at either end of the structure (a lot of light egress), boards on sections of the roof may provide roosting space. No evidence of bat usage.
Shed B (Building 4)	Concrete block shed with iron corrugate roof. Boards on sections of the roof, roof felt and chicken wire.	To be demolished	Low – boards on sections of the roof may provide roosting space. No evidence of bat usage.
Shed C (Building 5)	Series of sheds in poor condition, partial collapse of roofs	To be demolished	Negligible

Figure 4b: Location of buildings surveyed, Cornacassa, Monaghan Town, Co. Monaghan.

Plate 1: Bungalow (Building 1), Cornacassa, Monaghan Town, Co. Monaghan.

Plate 2a, b: External and internal photographs of Garage (Building 2), Cornacassa, Monaghan Town, Co. Monaghan.

Plate 3: Internal photograph of Shed A (Building 3), Cornacassa, Monaghan Town, Co. Monaghan.

Plate 4: External photograph of Shed C (Building 5), Cornacassa, Monaghan Town, Co. Monaghan.

Plate 5a, b: Internal photographs of Shed B (Building 4), Cornacassa, Monaghan Town, Co. Monaghan.

3.6.2 Night-time Survey

The following are the results of the array of bat surveys undertaken. All of the results are combined to produce distribution maps for each of the bat species recorded.

3.6.2.1 Night 1 – 25th August 2025

Two surveyors and two NVAs were set up within the two large sheds (Shed A and Shed B) to determine if these buildings were bat roosts. Surveyor 1, located in Shed B, recorded a single brown long-eared bat roosting behind the boards. This bat emerged at 20:55 (Red circle) and 20:56 hrs (Red X), flew around the internal space of the building and while one individual returned to roost behind the board at 21:05 hrs. This was confirmed by the thermal imagery filming.

Figure 5a: Screenshot of thermal imagery footage recording emerging bat from boards (Shed B).

Surveyor 2, located in Shed A, recorded common pipistrelles (2 individuals, 20:49 hrs and 20:53 hrs) and a soprano pipistrelle (at 20:52 hrs) emerging from boards on the roof on the left hand-side of the building. These bats flew inside the building for approximately 10 minutes before exiting through the open gable.

3.6.2.2 Night 2 – 28th August 2025

Surveying was concentrated on the bungalow and garage building during this survey. The first brown long-eared bat emerged at 21:12 hrs and a total od 17 individuals were recorded emerging during the survey. This was captured on thermal imagery filming. The number of bats indicates that this is likely to be a maternity roost.

Figure 5b: Screenshot of thermal imagery footage on Night 2 (25mm) – brown long-eared bat exit point at apex of roof (gable of bungalow).

Plate 6: Exit point for brown long-eared bats from roof space of bungalow (Red circle).

The static unit located in the attic space also confirmed that there was roosting brown long-eared bats. Bat passes for this bat species were recorded at dusk and at dawn indicating emerging and returning bats, respectively. For example, on 25th August 2025, brown long-eared bat activity was recorded from 20:19 hrs to 21:16 hrs (period of preparation for emergence, 28 bat passes). Some activity was recorded again from 00:43 hrs to 00:46 hrs and may indicate a single bat returning to the roosts as there were only 4 bat passes during this time period. Then around dawn, the bats started to return from 05:16 hrs with a total of 147 bats passes recorded from this time till 06:40 hrs. Typically this species of bat will fly around the roof space prior to settling down for the day and

therefore this accounts for the large number of bat passes (i.e. bat passes are an indication of bat activity and does not correspond to number of actual bats present).

No bats were recorded exiting from the garage (Building 2) during the dusk survey and this was confirmed by the thermal imagery filming. The static unit located in this building also confirmed that there were no bats roosting in the building.

3.6.3 Walking Transect

Four species of bat was recorded during the walking transect completed on 28th August 2025: soprano pipistrelle, Leisler's bat. Daubenton's bat and common pipistrelle.

3.6.4 Static Surveillance

Two static surveillance periods were undertake. The first period refers to Static 1, 2 and 3 which were located inside buildings and presented in text to support the dusk survey results. The second period, which will be presented in this section, refers to statics located along linear habitats. This was undertaken to guide the potential location of a bat house to replace the brown long-eared roost in the bungalow (Static 4, 5, 6 and 7).

The static surveillance provided evidence of the importance of the deciduous linear boundary habitat as a commuting route for local bat populations. Brown long-eared bats were recorded on all static units, with the higher level of activity at Static 5, which is the proposed location for a replacement bat house. This bat house will also have rooting provision for all bat species recorded during this survey.

A total of seven bat species were recorded. Soprano pipistrelle was the most frequently recorded bat species with common pipistrelle, the second most recorded bat species. Both bat species are Ireland's commonest bats. While brown long-eared bat appears to have a much lower activity level, the echolocation call produced by this bat is very quiet compared to *Pipistrellus* species and therefore, the level of activity recorded is indicative that there is a local roost as recorded in the bungalow within the proposed development area. All other bat species were recorded at a low level of activity.

Table 4d: Static Surveillance results – total number of bat passes recorded on units.

Static No.	Common pipistrelle	Soprano pipistrelle	Leisler's bat	Nathusius' pipistrelle	Daubenton's bat	Natterer's bat	Brown long-eared bat	No. of Nights
Static 4	67	203	30	2	2	2	18	6
Static 5	37	182	26	1	5	0	45	6
Static 6	26	124	13	0	9	0	3	6
Static 7	89	97	16	0	0	0	18	6

3.6.5 Bat Distribution Maps

The follow maps present all of the bat survey data and the distribution of such data for each bat species relating to this derogation application.

- Soprano pipistrelles and common pipistrelles were the most frequently recorded bat species and also recorded throughout the survey area. Both species have a similar distribution.
- Brown long-eared bat was only recorded during the static surveillance. This is a quiet echolocating bat species and therefore difficult to pick up during walking transects. However, static surveillance is an ideal method to record its presence and it was recorded in association with the treeline boundary of the proposed development site.

Figure 6a: Soprano pipistrelle bat encounters within survey area.

Figure 6b: Common pipistrelle bat encounters within survey area.

Figure 6d: Brown long-eared bat encounters within survey area.

4. Derogation Licence Application

Evidence to support the Derogation Tests

4.1 Test 1 – Reason for Derogation

In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Monaghan Co. Co. propose to:

- Demolition of a derelict bungalow (H18 R681), boundary walls, associated outbuildings and agricultural sheds.
- Erection of 70no. housing units comprising of:
    - 1no. 5 bed semi-detached part one storey, part two storey unit
    - 19no. 2 bed semi-detached/ terraced two storey units
    - 32no. 3 bed semi-detached/ terraced two storey units
    - 2no. 4 bed semi-detached two storey units
    - 15no. 2 bed semi-detached/ terraced bungalows
    - 1no. 5 bed detached bungalow
- Proposed new access road from the public road, car parking and bicycle parking provision, boundary fencing, hard and soft site landscaping works, new playground, public lighting, new pumping station, connection to public sewer, watermain and surface water and all associated site works.

Figure 7a: Layout of proposed development Cornacassa, Monaghan Town.

The proposed works will result in the demolition of three structures recorded as bat roosts:

- Building 1: bungalow recorded as a Maternity Roost for brown long-eared bats *Plecotus auritus*:
- Building 3: shed recorded as Day Roost for Common pipistrelle *Pipistrellus pipistrellus* (2 bats) and soprano pipistrelle *P. pygmaeus* (1 bat):
- Building 4: shed recorded as Day Roost for brown long-eared bats *Plecotus auritus*.

Therefore, a Derogation is being sought to permit the demolition of these buildings.

EXPLANATION:

Monaghan Co. Co. have provided a letter Re: Justification for the Grant of a Derogation Licence. This letter is provided as part of the Supporting Information.

In summary, the principal points are:

- Monaghan County Council is under sustained and significant pressure to deliver social and affordable housing across the county, with Monaghan Town experiencing the highest level of identified housing need.
- The buildings are structurally unsafe and unsuitable for retention or reuse. It is proposed to demolish these structures to facilitate the construction of a residential development comprising 88 housing units.
- To ensure no net loss of bat roosting opportunities, a purpose-built bat house will be provided on site as part of a comprehensive mitigation and compensation strategy.

This letter provides further information on the justification for the proposed development:

"1. Public Health and Safety

The existing structures on the Cornacassa site are in a derelict and structurally unsound condition. Their continued presence poses a risk to public health and safety, including the potential for structural collapse, unauthorised access, and injury to members of the public. As the site is located on the edge of Monaghan Town, there is a foreseeable risk of trespass, particularly given the visibility and accessibility of the buildings. The presence of bats within these unsafe structures further complicates the situation, as it restricts the Council's ability to make the buildings safe or remove hazards without a derogation. Leaving the structures in situ to avoid disturbance to bats would perpetuate an unacceptable safety risk and could result in uncontrolled or accidental disturbance to the species, which would be contrary to conservation objectives.

The controlled demolition of the buildings, carried out under licence and in accordance with best ecological practice, represents the safest and most responsible course of action. This approach allows risks to human health and safety to be addressed while ensuring that impacts on bats are fully mitigated through appropriate timing, supervision, and the provision of alternative roosting facilities.

2. Overriding Public Interest (Social and Economic)

The proposed development at Cornacassa is of overriding public interest due to its critical role in addressing acute housing need in Monaghan Town and the wider county. The delivery of 88 social

and affordable housing units will make a significant contribution to meeting identified demand, supporting vulnerable households, and promoting social inclusion.

Housing provision is a core statutory function of Monaghan County Council and is fundamental to wider public policy objectives, including public health, social cohesion, and economic stability. The shortage of housing has far-reaching consequences, including homelessness, overcrowding, and barriers to employment and community development. The Cornacassa site represents a strategically important and suitable location for residential development, given its proximity to the town, services, and infrastructure".

In addition, a structural survey was completed by Craftstudio Architecture and this provides details of the structural condition of the buildings proposed to be demolished. This report is provided as part of the Supporting Information.

In summary the following is stated:

"Based on the extent of structural cracking, roof deterioration, and the unsafe condition of the dwelling and associated outbuildings, the properties presents a risk to health and safety. All buildings are unsafe. It is recommended that these properties are demolished".

4.2 Test 2 – Absence of Alternative Solutions

There are no other suitable alternatives to the proposed works.

Alternative Solution	Reasons for "Unsatisfactory"
Do-Nothing	This will cause the buildings to continue to deteriorate, which will increase the health and safety concerns, reduce the suitability of the buildings as bat roosting.
Temporary Patch-up work	Patch-up works are not an economically viable option for Monaghan Co. Co.

Monaghan Co. Co. have provided a letter Re: Justification for the Grant of a Derogation Licence and it states the following:

"No satisfactory alternative exists that would allow the development to proceed without impacting the existing bat roosts, as the unsafe structures cannot be retained or incorporated into the design. However, the proposal ensures that the conservation status of the bat species will not be adversely affected. The construction of a purpose-built bat house on site, designed in accordance with specialist ecological advice, will provide long-term, secure roosting opportunities and represents an overall enhancement compared to the current situation of bats occupying derelict and unsafe buildings".

4.3 Test 3 – Impact of a derogation on Conservation Status

4.3.1 Summary of Bat Survey Results

The potential impacts of the proposed development on local bat populations within the project area are considered across each phase in terms of the following aspects, where relevant:

Construction Phase

- Loss of a maternity roost and three day roost due to the demolishment of existing buildings,
- Potential loss of tree roosts in trees proposed to be felled;
- Disturbance due to increased lighting;
- Disturbance due to increased noise;
- Loss of foraging habitat to facilitate construction of proposed development;

Operation Phase

- Disturbance due to increased lighting;
- Disturbance due to increased noise;

The degree of potential impact varies depending on the bat species and the type of roosts recorded and their location relative to the proposed development.

Brown long-eared bat is a “light-sensitive” less common bat species and this was recorded roosting in two buildings, one of which is a maternity roost. The building that this species of bat was recorded roosting in are proposed to be demolished as part of the development. The potential impacts of the proposed development, during construction, is deemed to be **Negative, Significant** impacts in the **long-term**. The third building was recorded as a day roost for common pipistrelle and soprano pipistrelle, Ireland’s two most common bat species. Therefore, the potential impact for the loss of this building is **Negative, Not Significant** impacts in the **long-term**.

In relation to commuting and foraging bats, a total of seven bat species were recorded within the survey area. While the linear habitats of the proposed development area are to be retained, some mature trees are proposed to be felled and the internal linear habitats adjacent to existing buildings will be removed and the agricultural field will be developed. Therefore the potential impacts of the proposed development will remove commuting and foraging habitat for local bat populations. The impacts, during construction, is deemed to be **Negative, Not Significant** impacts in the **long-term**.

The operation of the proposed development will increase lighting and noise in vicinity and therefore there are potential impacts on local bat populations commuting and foraging within the proposed development. However, there are two Public Greens and one Public Amenity Space proposed. This offers alternative foraging and commuting habitat for local bat populations, particularly the light tolerant bat species (Leisler’s bat) and semi-light tolerant bat species (i.e. common and soprano pipistrelles) which reduces the potential impacts of the proposed development during the operational phase. In addition, as there are large area of woodland adjacent to the proposed development, the potential impacts of the proposed development, during operation, is deemed to be **Negative, Not Significant** impacts in the **Medium-term**.

Bat mitigation measures are required to reduce the potential impacts on local bat populations, particularly in relation to the roost loss.

4.3.2 In relation to buildings proposed to be demolished

The proposed works will result in the demolition of three structures recorded as bat roosts:

- Building 1: bungalow recorded as a Maternity Roost for brown long-eared bats *Plecotus auritus*:
- Building 3: shed recorded as Day Roost for Common pipistrelle *Pipistrellus pipistrellus* (2 bats) and soprano pipistrelle *P. pygmaeus* (1 bat):
- Building 4: shed recorded as Day Roost for brown long-eared bats *Plecotus auritus*.

The loss of these roosts will not impact on the national population of the bat species named for the following reasons:

a) The national population of the three bat species are stable or increasing and therefore are in good conservation status.
b) Extensive bat mitigation measures will be implemented to ensure that alternative roosting is provided. In the following section, evidence of the success of such measures is presented in detail. These measures have been designed according to best practice and with reference to bat mitigation guidelines.
c) Bat Eco Services Ltd. has extensive experience in relation to the design, implementation and supervision of bat mitigation and therefore will endeavour to ensure that bats are not harmed during proposed demolition works and that monitoring of alternative roosting will be undertaken to reduce potential negative impacts of the proposed development.

5. Bat Mitigation Measures

Since the proposed development requires the demolition of all buildings, a derogation licence is required to permit the loss of the bat roosts recorded:

- Brown long-eared bat maternity roost in the bungalow (Building 1)
- Common pipistrelle and soprano pipistrelle day roost in Shed A (Building 3)
- Brown long-eared bat day roost in Shed B (Building 4)

5.1 Mitigation Measures

Mitigation measures are required to be put in place to reduce this potential impact. The result of the summer bat survey will determine the bat mitigation measures required. Provisionally, the following will be required in relation to any outdoor lighting proposed.

5.1.1 NPWS Derogation Licence

Apply for a derogation licence (at least a 4-week procedure).

5.1.2 Alternative Bat Roosts

The provision of alternative bat roosts can be in the form of bat box schemes and the construction of species-specific bat houses. Marnell *et al.* (2022) provides guidance in relation to appropriate mitigation for different Irish bat species and the type of roosts recorded, depending on the roost status (e.g. maternity roosts). Bat boxes are acceptable for the provision of alternative roosts for bat species proven to use such while bat houses are increasing constructed for the replacement of more important roosts (i.e. maternity roosts). Therefore, both type of alternative measures will be applied here. The Bat House is primarily designed to meet the alternative roosting requirements for brown long-eared bat maternity roost. The design was successfully used for common pipistrelles in another project and for whiskered bat and brown long-eared bats in a second separate project and therefore will be suitable for this project. Additional bat tubes will be designed into the fabric of the bat house to provide additional roosting for species such as common pipistrelle, soprano pipistrelle, Daubenton's bat and Leisler's bat (all bat species recorded by Bat Eco Services Ltd. to roost in bat tubes). This will ensure that the Bat House provides alternative roosting for all bat species recorded roosting in the buildings proposed to be demolished and cater for the array of roost types recorded. Bat boxes are also recommended to provide additional alternative roosting for all bat species recorded.

5.1.2.1 Bat House

The bat house design presented below is based on successful bat houses designed by Bat Eco Services Ltd. and constructed as mitigation for other projects. The details of Oldstreet Bat House is presented as a case study in the appendices.

The proposed location of Cornacassa Bat House is in the northern corner of the proposed development site, adjacent to existing woodland, a location where the highest level of brown long-eared bat activity was recorded (apart from the existing bat roost itself) and where there is a proposed maintenance building for the proposed development (i.e. Pumping House Station). The latter provides additional exclusion from the day-to-day operation of the site with a Public Green acting as a buffer zone (vegetation buffer) from the day-to-day operation of the site.

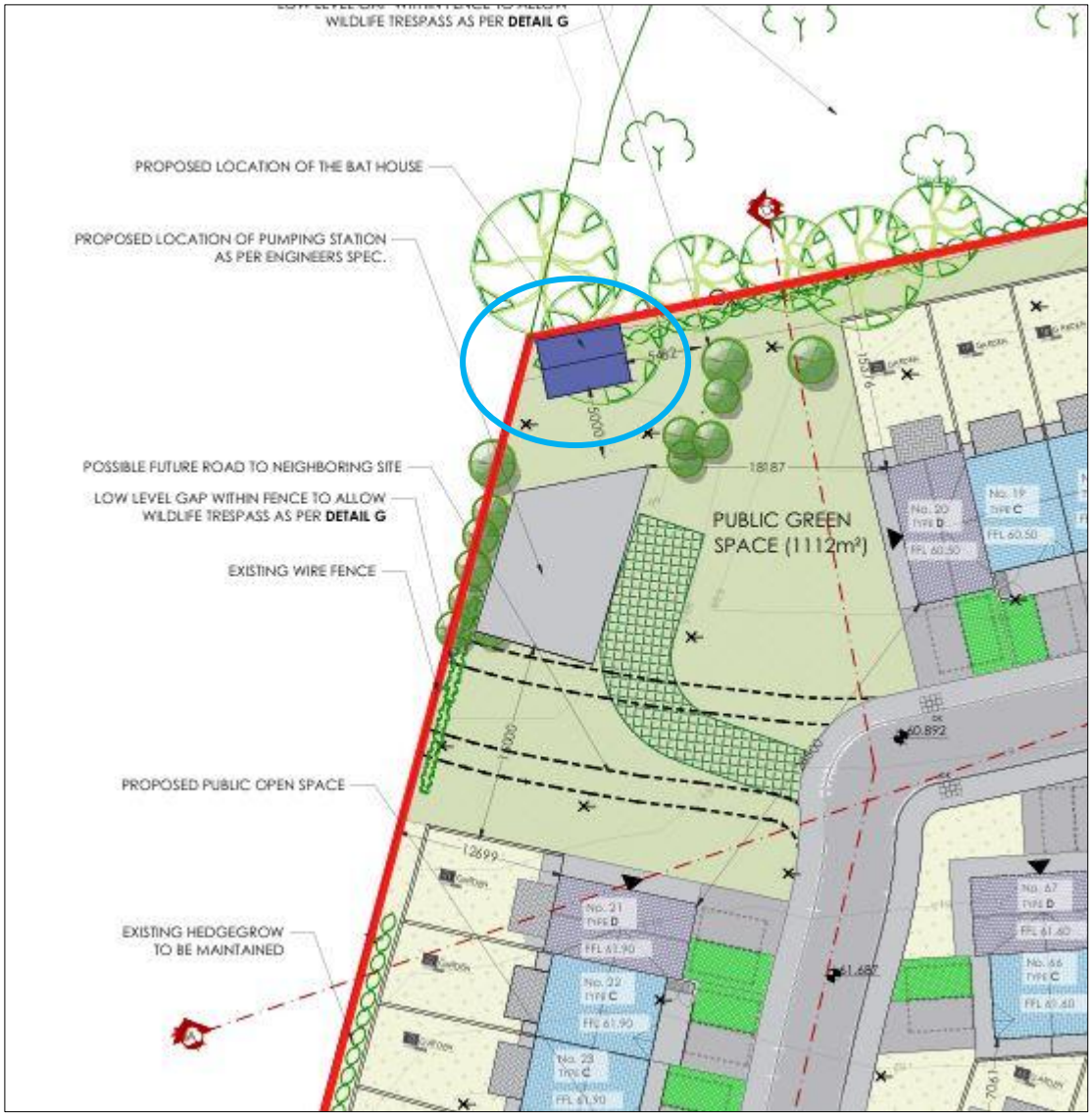


Figure 7b: Proposed location of bat house, in Public Green, north of Pumping Hs Station.

The following design is to cater for the ecological roosting requirements of brown long-eared bats:

- Minimum of 3m x 7m (internal floor space) 1½ storey (minimum internal height of 4.5m from floor level to highest point of roof space) building constructed from concrete block rendered with plastered externally (no plaster required internally). **NOTE: Actual design is overall bigger than requested and therefore will provide better roosting conditions – 4.5m x 6.5m (attic volume of 36.5 m³) and therefore meets Lintott & Mathews (2018).**
- A-roof, constructed of natural slate and 1F bitumous felt (no modern breathable felt is to be used in the bat house) on timber joists (9 x 2-inch joists). There is an attic space with loft entrance internally from the ground floor. The timber joists of the loft space is constructed in a traditional manner to ensure that the arrangement of the timbers provide the bats with an uncluttered in which to fly. The modern pre-formed roof trusses are generally unsuitable for bat species as they tend to have more timbers across their giving more obstacles for bats to fly around. A pitched roof creates thermal gradient for bats and should be constructed of local material, preferably natural slate.
- Entrance points along the facia and soffit (small sections of the soffit will be left out to provide gaps for the bats to enter the loft space) and additional access points will be provide by the use of bat slates (2 units) which will be inserted into the roof during constructed (ensuring that the felt is cut to allow bats to crawl through the bat slate and into the roof void.

- The ground floor entrance will be a solid door (locked).
- Facia/Soffit and drainpipes required. Sections of the soffit will be left off to allow bats to enter the loft space (30cm sections in four areas – to be decided in consultation with the bat specialist).
- Four bat slates will be inserted into the roof, 3 on the roof elevation facing the existing deciduous woodland and the 4th on the roof elevation facing the Pump house Station. These are designed according to the VWT Bat Slate and will be inserted at the exact positions determined by the bat specialist during supervision of works.
- Six bat tubes will be inserted into the external fabric of the gable walls (i.e. a total of 12 bat tubes). These are inserted side-by-side like that undertaken for the Oldstreet Bat House (See Appendix 8.1).

Internally, the following is recommended:

- The floor of the building is to be a layer of crushed stone (2/3 inch down) (minimum use of concrete is recommended to reduce the negative impact of this material on the thermal conditions of the building) with a upper layer of 804 Clause (crushed) stone.
- A loft space is to be constructed. A floor is to be constructed dividing the building into a ground floor and loft floor. Timber joists (9x2 inch timber) will be sheeted with marine plywood (leaving the timber joists exposed at the ground floor level (i.e. under the plywood sheets) – this will provide additional roosting space for bats).
- To achieve a minimum loft space of 24m^3 (Lintott & Mathews, 2018), the height of the loft is a minimum of 2.5m from the internal apex of the roof. However, if possible, once access is possible to existing house, an examination of the current loft space may result in small tweaks to this design. **NOTE: Actual design is bigger and therefore will provide better roosting conditions – 4.5m x 6.5m (attic volume of 36.5 m^3) and therefore meets Lintott & Mathews (2018).**
- To allow bats to fly between the loft and ground floor, the trap door opening should remain open.
- Ladder will be provided and remain in the structure to allow human access to loft to undertake monitoring of this section of the bat house.
- The floor of the loft should be insulated (underneath the floor – i.e. ceiling side of the ground floor) to ensure that solar heating of the loft is retained within the loft space.
- Additional bat tubes will be hung inside bat house, within the ground floor space at the highest point tuck up against the ceiling of the loft (See Appendix 8.1 for details).

The construction of the bat house went out to tender and will be built during the Spring of 2026. This will ensure that the structure is in place prior to the maternity season and prior to demolition of buildings, if derogation is granted.

Bat Eco Services Ltd. will be supervising the construction of the bat house and undertaking monitoring, using temperature data loggers, static surveillance and dusk surveys to ensure that the bat house is a suitable alternative roost for all three bat species: brown long-eared bat, soprano pipistrelles and common pipistrelles.

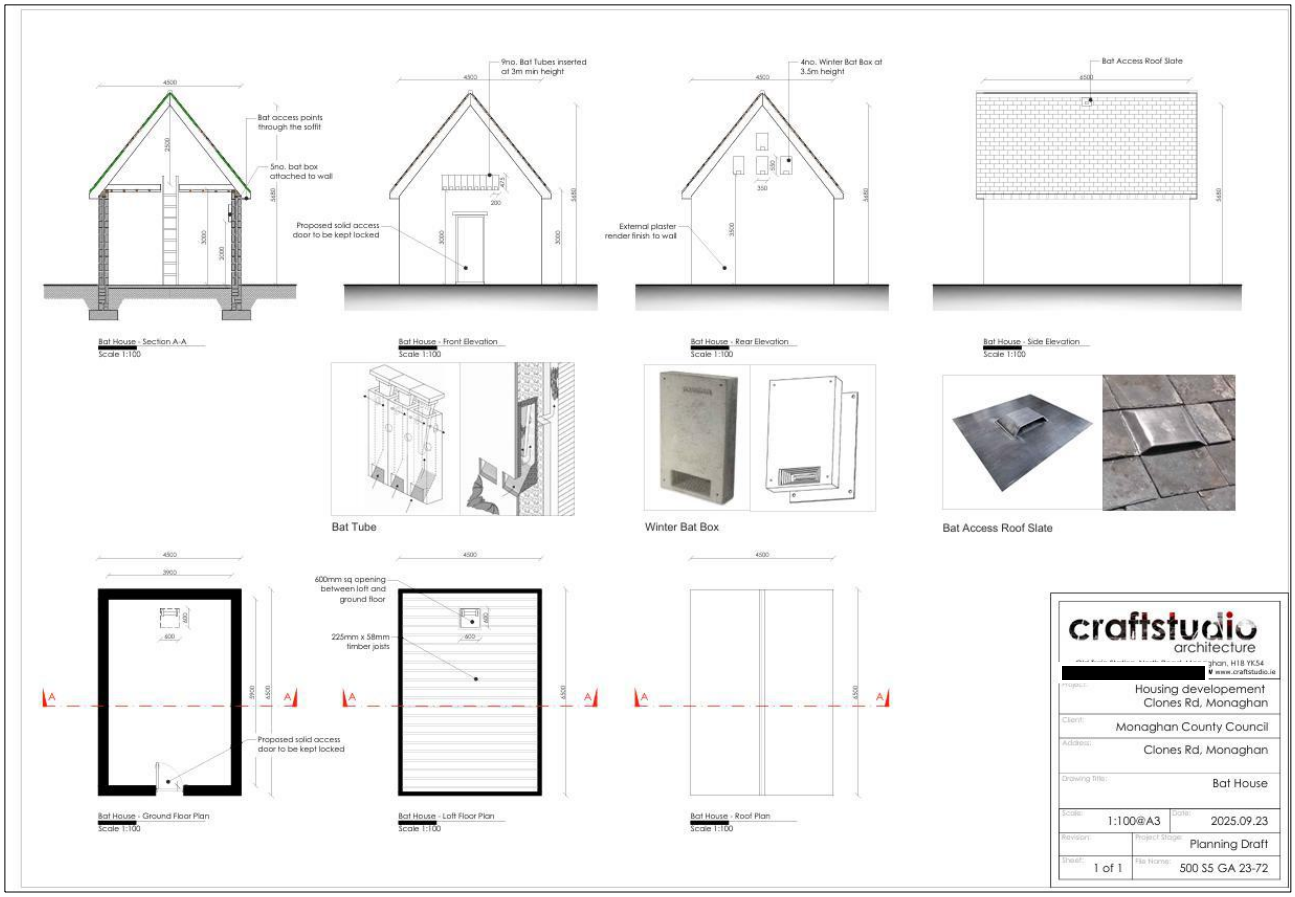


Figure 7c: Cornacassa Bat House design.

EVIDENCE – Bat House (Cornacassa Bat House) is a suitable alternative roost

The location of the bat house is optimised for local brown long-eared bats populations because:

- It is situated in the corner of the proposed development site where the highest level of brown long-eared bat activity was recorded during static surveillance.
- This location is connected directly to an existing woodland, which also has linear habitat connectivity to a larger woodland area to the north of the proposed development site.
- Brown long-eared bats are typically woodland bat species and tend to forage within 2.5km of their roosting site (Swift, 1998).
- The location of the bat house in the corner of the development will mean that it is buffered by the increased noise and light levels of the proposed development. There is also a green space (with landscaping) proposed to be located between the bat house and the proposed housing development which will increase the buffering zone. In addition, lighting in vicinity of this area is designed to be "bat friendly" according to BCT (2023) to ensure there is less of an impact on light sensitive bat species such as brown long-eared bats.

Therefore, the proposed bat house is located at an optimum site to increase brown long-eared bat occupation.

The design of the bat house is optimised for local brown long-eared bats populations because:

- The dimensions of the loft space of the proposed bat house replicates that of the existing bungalow attic space.

- The design of the bat house follows that of the Bective Bat House that successfully provide an alternative bat house for whiskered bats and brown long-eared bats (see Bat Eco Services CV for more information).
- Bat Eco Services Ltd. have designed, supervised and monitor more than ten bat houses in Ireland to-date. Two of these bat houses (i.e. Bective Bat House and Oldstreet Bat House) were successfully designed for vesper bats and provide evidence that bat houses can provide suitable alternative roosting. Please see appendices for summary of monitoring surveys completed at Oldstreet Bat House. This lists the number of bat species and number of bats recorded during each survey completed to-date (x5).

Therefore, the proposed bat house is designed to provide alternative brown long-eared bat roost.

The bat house will also provide alternative roosting for the day roosts for common pipistrelles and soprano pipistrelles:

- Oldstreet Bat House was successfully designed to provide roosting for common pipistrelles within the roof space of the bat house. The Cornacassa Bat House is designed similarly.
- In addition, bat tubes will be inserted into the external walls of the gables of Cornacassa Bat House. Both Bective Bat House and Oldstreet Bat House were similarly designed. During monitoring surveys of Bective House, soprano pipistrelles roosting in the bat tubes while monitoring of Oldstreet Bat House recorded Leisler's bats, soprano pipistrelles and common pipistrelles roosting in the bat tubes. Therefore, bat tubes provide additional roosting spaces and increase the biodiversity value of bat houses.

Therefore, the proposed bat tubes in Cornacassa Bat House will provide additional roosting space for common pipistrelles and soprano pipistrelles.

It is important to note that the construction of the bat house is required to be in place prior to any demolition of buildings and a degree of proof that the building is "fit for purpose" is also needed. This will be undertaken as part of monitoring of the bat house using temperature data loggers and static bat detectors to ensure that the internal loft temperature is suitable for roosting bats and that any bat usage is recorded, respectively.

5.1.2.2 Bat Boxes

A bat scheme is recommended both as a conservation measure and to provide alternative roosts, particularly if there are any proposed tree felling of parkland trees. These will be erected prior 6 months to tree felling to allow local bat populations to become aware of it prior to removal of the structure.

- Summer Bat Boxes (1FF Schwegler woodcrete or similar design) – 6 bat boxes will be erected on mature trees within the proposed development site.

Bat boxes will be erected prior to tree felling or tree surgery works. Some general points that will be followed include:

- Straight limb trees (or telegraph pole) with no crowding branches or other obstructions for at least 3 metres above and below position of bat box will be used.
- Diameter of tree will be wide and strong enough to hold the required number of boxes.
- Locate bat boxes in areas where bats are known to forage or adjacent to suitable foraging areas. Locations will be sheltered from prevailing winds.
- Bat boxes will be erected at a height of 4-5 metres to reduce the potential of vandalism and predation of resident bats.
- It is recommended to erect a number of bat boxes on one tree at an array of aspects. South facing boxes will receive the warmth of the sun, which is necessary for maternity colonies. In large bat box scheme it is generally recommended to have three bat boxes arranged at the same height facing North, South-East and South-West. This ensures a range of temperatures are available all day. If the South facing boxes become warm, bats can safely remove to the cooler North facing box.
- Locations for bat boxes will be selected to ensure that the lighting plan for the proposed site does not impact on the bat boxes.

EVIDENCE – Bat Boxes provide suitable alternative roosts

Bat Boxes are frequently used as part of bat mitigation to retain local bat populations within an area proposed to be development. The NPWS Bat Mitigation Guidelines (Marnell *et al.* 2022) considers that where roosts of low conservation significance (Figure 20, Marnell *et al.* (2022)) are to be lost due to a development, bat boxes may provide an appropriate form of mitigation and the effectiveness depends on the type of bat box provided, which should be appropriate to the bat species. The bat boxes are proposed to provide alternative roosting for the day roosts recorded in Building 3 and Building 4 (i.e. brown long-eared bats, common pipistrelles and soprano pipistrelles).

Table 7 The types of bat box used by different species.

Species	Summer/ maternity	Summer/non breeding	Hibernation*	Notes
Rhinolophus hipposideros	N/A	N/A	N/A	Horseshoe bats cannot use bat boxes
Myotis daubentonii	H	H		
Myotis mystacinus	H	H		
Myotis nattereri	H	?		
Pipistrellus nathusii	H	H		
Pipistrellus pipistrellus	C	C/H	C	H are rarely used as maternity roosts.
Pipistrellus pygmaeus	C	C/H	C	
Nyctalus leisleri	H	H	H?	
Plecotus auritus	H	H		Maternity roosts

Key

* Large well-insulated hibernation boxes may be more successful

N/A -not applicable; bat boxes should not be considered as replacement roosts

H – tree hollow-type box, providing a void in which bats can cluster

C – tree crevice-type box, with 25-35mm crevices

? – few data on which to base an assessment

Figure 7d: Table 7 (p 58) Reproduced from Marnell *et al.* (2022).

Two publications that provide good scientific advice in relation to the effectiveness of bat boxes are presented here. McAney & Hanniffy (2015) reviewed the use of bat boxes in Ireland in relation to the bat usage of the following bat box schemes: 62 Schwegler boxes of three models erected in Portumna Forest Park (Bat box scheme consisted of 30x 1FF design, 30x 2FN design and 2x 1FW design); 50 2FN boxes erected in Coole-Garryland Nature Reserve and 50 2FN boxes erected in Knockma Nature Reserve of which 40 were later transferred to Glengarriff Nature Reserve County Cork. The bat box schemes were set up in March 1999 and data was collected up to 2015. Eight of the nine resident Irish bat species were recorded roosting in bat boxes (lesser horseshoe bats cannot use bat boxes due to their need to fly, rather than crawl, into roosts). The main summary points are as follows:

- Leisler's, brown long-eared and *Pipistrellus* spp. were recorded in boxes at all three Galway woods, Daubenton's bat was only recorded in Garryland, Natterer's bat was only recorded in Glengarriff and whiskered/Brandt's was recorded just twice.
- Pipistrellus spp. preferred 1FF boxes as this bat box design offer crevice-like roosting conditions. This species group also showed a seasonal preference with more bats present later in the season (visual observations confirmed the bats were using the boxes as mating roosts) and their numbers increased from the time that the bat box scheme was originally established.
- Aspect was not a significant factor for occupancy, but most boxes received dappled sunshine for part of the day.
- The other factor that proved significant was the length of time the boxes were in place, with occupancy rates increasing for all three species, although in the case of pipistrelles this increase appears to have stabilised. So, although the boxes were occupied very quickly, it took several years before they were regularly occupied and before clusters of bats were formed and breeding was confirmed.

Collins *et al.* (2020) investigated the implementation and effectiveness of bat roost mitigation, which included bat boxes, in building developments completed between 2006 and 2014 in England and Wales. The bat species studied were: common and soprano pipistrelle, brown long-eared bat and *Myotis* species, all of which are present in Ireland. A summary of the main points relating to bat boxes are as follows:

- Bat boxes were the most frequently deployed roosting provision (i.e. alternative roosts), being installed at 64% (n = 71) of sites surveyed as a compensation or enhancement measure.
- Box frequencies ranged from 1 to 41 at sites where they were installed, with an average of 6.6 boxes per site.
- Bats, or evidence of bats, were recorded in 20% of these bat boxes.
- Bat boxes mounted externally on buildings showed the highest occupation rate regardless of species while Common pipistrelle showed a preference for these over tree mounted boxes; the opposite was true for soprano pipistrelle.
- The four most popular bat box models used by consultants in the study were all Schwegler woodcrete bat boxes. Bat presence was highest in the 1FF bat box design (32%, n = 53) and lowest for birds (8%). The tree-mounted 2F and wall-integrated 1FR/2FR models both demonstrated similar bat presence rates of 23% (n = 43) and 25% (n = 32) respectively. The 2FN tree-mounted model showed the lowest presence rate for bats (11%, n = 19) and the highest for birds (58%). There were also 26 timber bat boxes, none of which were used by bats.

The author has also erected several bat box schemes and, where possible, has completed occasional monitoring visits. One such example is a bat box scheme erected in Kileshandra, Co. Cavan and originally consisted of 8 Schwegler woodcrete bat boxes of various designs. The bat boxes were erected on mature trees located in a linear woodland adjacent to a river. This bat box scheme was erected in 2012 as part of mitigation for the demolishment of a large derelict building where small satellite roosts were recorded for *Pipistrellus* spp. and Daubenton's bat. During three site visits evidence of bat usage were recorded. The first site visit was on 25/8/2015 and one bat box was occupied by a single Leisler's bat while the additional seven bat doxes had evidence of bat droppings (*Pipistrellus* spp. and *Myotis* spp.). During the second site visit (27/7/2019) four bat boxes were occupied by bats (Soprano pipistrelle x1 individual (adult male), Leisler's bat x1 individual (adult male) and two bat boxes with x16 Daubenton's bats and x10 Daubenton's bats respectively). The remaining four bat boxes all had droppings within for *Pipistrellus* spp and Leisler's bats. An additional inspection was completed on 2/7/2022 and one of the 2F woodcrete bat boxes was occupied by >15 soprano pipistrelles while additional boxes were occupied by single soprano pipistrelles, Daubenton's bats and Leisler's bats. This bat box scheme, while just one example, demonstrates that when bat boxes are erected in an area with good bat habitat (bat survey documented a high level of bat activity for the named bat species), a high level of occupancy of bat boxes will occur.

As a result of the above results, Bat Eco Services Ltd. has since undertaken a ringing study (under licence) of three bat box schemes, including the Kileshandra BBS described above. This study was undertaken in 2025 and the three bat box schemes were investigated from July to October. Under licence (Section 32 Licence No. 004/2025), a total of 45 bats were ringed and this comprised of Daubenton's bats (*Myotis daubentonii*), soprano pipistrelles (*Pipistrellus pygmaeus*) and Leisler's bats (*Nyctalus leisleri*). Fourteen ringed bats were re-captured during subsequence bat box checks. The biometric data was recorded for all bats ringed and recaptured and this provided positive data in relation to the health of the individuals recaptured. This brief study successfully showed that the same bats will occupy bat boxes across the active season.

In relation to bat boxes, Marnell *et al.* (2022), a document that provides guidelines that are considered to be practical and effective based on past experience, recommends that the design life of potential bat boxes, including essential maintenance, should be about 10 years, as this would be comparable with the lifespan of the tree roosts that bat boxes are designed to mimic. The guidelines continue by stating that the "This lifespan can be achieved with good quality wooden boxes and exceeded by woodcrete bat boxes or other types of construction that ensure any softwoods are protected from the weather and attack by squirrels" (note – this includes woodstone bat boxes).

In relation to the number of bat boxes recommended to be erected, Lintott & Mathews (2018) found that the greater the number of bat boxes deployed, the greater the probability of at least one of the boxes becoming occupied and that the odds of bats occupying at least one box increased by approximately 7% with each additional bat box that was deployed. Bat boxes are erected, as part of this proposed development, to mitigate for the loss of potential roosts in trees.

Therefore, Schwegeler woodcrete bat boxes are recommended as a bat mitigation measure. Both McAney & Hannify (2015) and Collins *et al.* (2020) demonstrated that usage of this bat box design by bat species recorded in this survey report. This bat box is also less likely to be used by birds and therefore retaining it for bat usage between monitoring visits. To increase occupancy of bat boxes by bats it is important to erect bat boxes 4m or higher (to ensure that bat boxes are out of reach from disturbance by humans and predation by other mammals) and that they should be located where bats have been documented foraging and commuting. The aspect of the bat box is not an influencing factor in relation to occupancy. These recommendations will be undertaken as part of the mitigation measures.

5.1.3 Demolition of Buildings

5.1.3.1 Bungalow

As this building was recorded as a brown long-eared maternity roost, this building can only be demolished outside the maternity season (i.e. not in the months of May to September).

The demolishment procedure will require the following elements in relation to the treatment of bats:

- Dusk survey prior to demolition to determine if any bats are present;
- Ridge tiles, tiles, facia & soffit will removed hand under supervision by the bat specialist;
- The internal space of the attic and roof felt will be inspected for any roosting bats and removed to safety (place in the bat house by the bat specialist).
- The finer details will need to finalised with the contractor.

5.1.3.2 Agricultural Sheds

As these buildings were recorded as a brown long-eared bat, common pipistrelle and soprano pipistrelle day roosts, these building can only be demolished outside the maternity season (i.e. not in the months of May to September) to reduce the likelihood of encountering pregnant or suckling females.

The demolishment procedure will require the following elements in relation to the treatment of bats:

- Dusk survey prior to demolition to determine if any bats are present;
- Roof boards will removed hand under supervision by the bat specialist;
- The internal space of the space of the buildings will be inspected for any roosting bats and removed to safety (place in the bat house by the bat specialist).
- The finer details will need to finalised with the contractor.

EVIDENCE – The above procedure is appropriate to reduce harm to bats and reduce potential encountering of bats

Bat Eco Services Ltd., under licence, have undertaken successful supervision of demolition of numerous buildings. Demolition outside the main maternity season is recommended by Marnel *at al.* (2022) and as such the procedures will follow this guidance document. A recent example is the demolition of a farmhouse (for which Oldstreet Bat House was constructed as an alternative). The farmhouse provided a summer roost for a small common pipistrelle colony (approx. 20 individuals). Demolition of the buildings was undertaken in the winter months. Prior to supervised roof removal, a series of dusk surveys and static surveillance was undertaken to determine if bats were present. No activity was recorded. As a precaution, Bat Eco Services Ltd. supervised the removal of the roof and during which, a single bat was safely removed and relocated in Oldstreet Bat House. No other bats were found during the remaining three days of supervision.

Therefore, the above procedure reduces the potential of encountering bats and supervision ensures that any bats encountered are safely removed and re-located under licence.

5.1.4 Outdoor Lighting

Bats are light sensitive bats species, hence their nocturnal activities and where possible, no lighting is the Best Practice to prevent an impact on nocturnal wildlife as lighting is a barrier to movement and therefore impacts on feeding, commuting and potentially roosting.

Where lighting is required, luminaire design is extremely important to achieve an appropriate lighting regime. Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires. This is taken from the most recent BCT Lighting Guidelines (BCT, 2023). It is important that the client checks that any outdoor lighting meets the following guidelines:

- No lighting should be erected in vicinity of the Bat House and the linear boundary habitats for 100m either side of the bat house location.
- Lighting associated with the buildings must meet the guidelines below to reduce the impact on local bat populations.

Where lighting is deemed necessary, the following are required:

- 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 of luminaires. A 2700 Kelvin luminaire appears as a warm yellow due to the reduction in the stark blue light associated with higher Kelvin values (e.g. 4000 Kelvins). The “warmer” the light, the less of an impact on nocturnal wildlife. The progression of LED technology means that the majority of luminaires are available at 2700 Kelvins and lower. Therefore, it is recommended that such luminaires are standard for “biodiversity areas”. The lower the Kelvin level the more Yellow the light appears.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaires, in relation to buildings within the proposed development area, 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 minimised upward light spill) to delineate path edges, if required, for pedestrian zones within the proposed development area should be used.
- 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 Ration, and with good optical control, should be considered.
- Luminaires should always be mounted horizontally, with no light output above 90^{o} and/or no upward tilt.
- Where appropriate, external security light should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow (e.g. 1-2 minute timer).
- 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.

Any external lighting for the proposed development should strictly follow the above guidelines and these should be strictly implemented during construction and operation phase of the proposed development.

5.1.5 Landscaping

To increase the success of the bat house, it is important that the landscaping is design to increase tall deciduous vegetation in vicinity of the proposed bat house and connected to the boundary linear habitat features. This is to ensure that there is a dark corridor of vegetation available to the commuting and foraging for light sensitive bat species such a brown long-eared bats. Therefore the following key elements are required for the landscape plan:

- Only deciduous tree and shrubs are used in landscape with a preference for native tree and shrub species.
- The bat house is located adjacent to existing woodland and is surrounded by a newly planted native treeline/hedgerow to prevent lighting spill and to reduce noise from operation of the proposed development. This planting will be at a distance of 5m from the external footprint of the Bat House to allow maintenance and to prevent shading on the bat house to ensure that there is maximum solar heating of the roof.
- The linear habitats that are connected to the bat house are required to be enhanced to ensure that there is a dense tall vegetation treeline/hedgerow to provide commuting and foraging habitat.
- It is recommended that where possible, a great level of individual trees are planted to provide foraging habitat in area such as the Public Greens (x2) and Public Amenity Space. Such planting should include a mix of Oak, Birch, Mountain ash, Crab apple, Hazel and Alder trees, all of which are native plant species.
- New hedgerows should be planted with hawthorn, blackthorn, holly, alder and hazel native plant species.

EVIDENCE – The above mitigation measures are designed according to best practice guidance and will ensure that the potential impacts of the proposed development are reduced.

5.1.5.1 Monitoring

Extensive supervision by a bat specialist of the proposed works will be required throughout project to ensure that no bats are harmed during the works. This will be coupled with static surveillance of the bat house to document bat activity within this structure and all other alternative roosting provisions.

5.1.5.2 Reporting

Bat Eco Services Ltd. will provide a full report on the bat mitigation measures undertaken and the monitoring results during the proposed works. A returns form will automatically be filed on completion of the works.

5.1.5.3 Future Surveys

Bat Eco Services Ltd. will undertake monitoring surveys during and post-works to determine presence of the local bat populations and the success of bat mitigation measures. Data collected will be submitted to Bat Conservation Ireland for inclusion on the Bat Database.

5.1.5.4 Evidence

Bat Eco Services Ltd. have extensive experience in the implementation of bat mitigation measures. A CV is provided as part of the supporting document to accompany this application. This CV provides information on an array of projects completed to-date. Additional information is also provided in the Appendices below.

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7. Appendices

7.1 Appendix 1 – Oldstreet Bat House

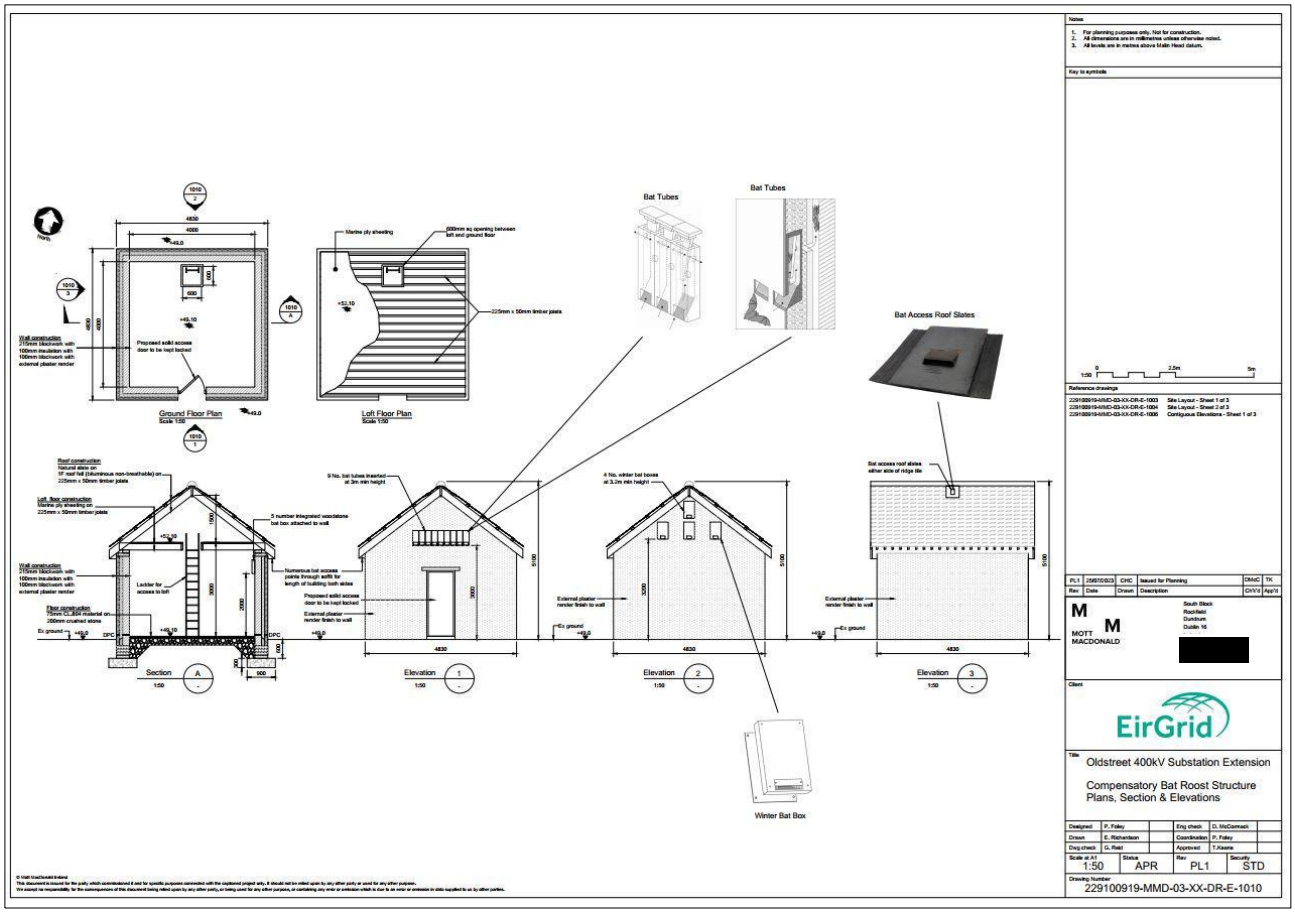
The following design is that of the recently constructed for Common pipistrelles at Oldstreet Substation, Co. Galway (permission granted by ESB and EirGrid to use the bat design drawing).

This Oldstreet Bat House consisted the following design features:

- 4m x4m (internal floor space) 1½ storey (internal height of 4.5m from floor level to highest point of roof space) building constructed from concrete block rendered with plaster (insulation between the two walls).
- A-roof, constructed of natural slate and 1F bitumous felt (no modern breathable felt is to be used in the bat house) on timber joists (9 x 2 inch joists). There is an attic space with loft entrance internally from the ground floor.
- Entrance points along the facia and soffit (sections of the soffit will be left out to provide gaps for the bats to enter the loft space). Aadditional access points will be provide by the use of bat slates (2 units) which will be inserted into the roof during constructed (ensuring that the felt is cut to allow bats to crawl through the bat slate and into the roof void.
- The ground floor entrance will be a solid door (locked).
- Facia/Soffit and drain pipes required. Sections of the soffit will be left off to allow bats to enter the loft space (30cm sections in four areas – to be decided in consultation with the bat specialist).

Internally, the following was undertaken:

- The floor of the building is to be a layer of crushed stone (2/3 inch down) (minimum use of concrete is recommended in order to reduce the negative impact of this material on the thermal conditions of the building) with a upper layer of 804 Clause (crushed) stone.
- A loft space is to be constructed. A floor is to be constructed dividing the building into a ground floor and loft floor. Timber joists (9x2 inch timber) will be sheeted with marine ply wood (leaving the timber joists exposed at the ground floor level (i.e. under the ply wood sheets) – this will provide additional roosting space for bats).
- In order to achieve a loft space of 24m^3 (Lintott & Mathews, 2018), the height of the loft is a minimum of 1.5m from the internal apex of the roof. However, if at all possible, once access is possible to existing house, an examination of the current loft space may result in small tweaks to this design.
- To allow bats to fly between the loft and ground floor, the trap door opening should remain open.
- Ladder will be provided and remain in the structure to allow human access to loft to undertake monitoring of this section of the bat house.
- The floor of the loft should be insulated (underneath the floor – i.e. ceiling side of the ground floor) to ensure that solar heating of the loft is retained within the loft space.
- Additional bat roosting structures will inserted internal and externally into the walls of the structure.



Bat House Design Drawing prepared by EirGrid for Oldstreet Substation Bat House, Co. Galway.

EirGrid have given permission for the presentation of the bat house design above. However the following note is stipulate -

This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose. We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

Open trap door and insulated ceiling (ground floor) of Oldstreet Substation Bat House, Co. Galway.

Additional roosting

- External walls

9 Bat Tubes were inserted into the external front wall to provide roosting sites for crevice dwelling bats. These were inserted at a minimum of 3m height.

Bat Tube 1FR and 2FR - Veldshop.nl – please see illustrations of bat tubes and the construction as a façade part of the wall.

Series of Bat Tubes inserted into the external wall of Oldstreet Substation Bat House, Co. Galway (pre-plaster).

Finished bat house with bat tubes (south facing external wall), Oldstreet Substation Bat House, Co. Galway.

On the north facing aspect of the wall, 4 winter bat boxes were inserted individually into the wall. Again these were built into the wall at the highest point to ensure that the exit points at the base of the bat boxes are 3.2m off the ground (to prevent predation of emerging bats).

Winter Batbox 2WI - Veldshop.nl – please see link for illustrations and descriptions of this type of bat box.

Winter Bat Boxes inserted into wall, prior to plastering (Oldstreet Substation bat House, Co. Galway).

Winter Bat Boxes inserted into wall, post plastering (Oldstreet Substation bat House, Co. Galway).

- Internal walls

10 units of bat tubes (1FR), were hung on the walls on the ground floor level (attached to the wall at the highest point possible).

Bat Tubes fixed onto internal ground floor wall (Oldstreet Substation bat House, Co. Galway).

The following is a summary of the monitoring surveys completed at Oldstreet Bat House:

Survey Date	Daytime Inspection: Attic	Daytime Inspection: Bat Tubes	Dusk Survey: Attic	Dusk Survey: Bat Tubes	TOTAL
21/06/2024 Weather conditions: patchy cloud cover, dry, calm and 14oC	No bat droppings or bats present	Bat Tube No. 7 - Leisler's bat droppings	x4 common pipistrelles emerged from roof space	x1 common pipistrelle emerged from Bat Tube No. 7	**x5 common pipistrelles confirmed roosting in the Bat House**
11/07/2024 Weather conditions: full cloud cover, dry, light breeze and 12oC	x10 Pipistrelle bat droppings in attic space	x2 bat tubes with bat droppings - Bat Tube No. 7 and No. 9	x4 common pipistrelles emerged from roof space	0 bats	**x4 common pipistrelles confirmed roosting in the Bat House**
03/09/2024 Weather conditions: full cloud cover, dry, calm and 12oC	x7 Pipistrelle bat droppings in attic space	x3 bat tubes with bats roosting: No. 3 - x1 Leisler's bat; No. 7 x2 soprano pipistrelles & No. 9 x1 Leisler's bat. x5 bat tubes with bat droppings - Bat Tube No. 1, No. 2, No. 3, No. 7 and No. 9	x7 common pipistrelles emerged from roof space	x2 Leisler's bats and x3 soprano pipistrelles emerged from three bat tubes	**x7 common pipistrelles, x2 Leisler's bat and x3 soprano pipistrelles confirmed roosting in the Bat House**
24/06/2025 Weather conditions: full cloud cover, light breeze, dry, 13oC	>20 Pipistrelle bat droppings in attic	x3 bat tubes with bats roosting: No. 5 x1 Leisler's bat, No. 7 x1 leisler's bat, No. 9 x3 soprano pipistrelle. All front bat tubes with bat droppings. X2 rear bat tubes	x3 common pipistrelles recorded emerging from roof space	x2 common pipistrelle emerged from rear bat tube; x2 Leisler's bats and 3 soprano pipistrelles emerged from front bat tubes	**x5 common pipistrelles, x2 Leisler's bat and x3 soprano pipistrelles confirmed roosting in the Bat House**

		with bat droppings			
16/10/2025 Weather conditions: full cloud cover, dry, calm, 14oC	x12 Pipistrelle bat droppings in attic space	x2 bat tubes with bats roosting: No. 7 x2 soprano pipistrelles, No. 9 x1 soprano pipistrelles	x10 common pipistrelles emerged from roof space	x3 soprano pipistrelles emerged from bat tubes	**x10 common pipistrelles and x3 soprano pipistrelles confirmed roosting in the Bat House**