Bat Survey Kilbarron, Feakle 1/9/25

AN DOIRE ENVIRONMENTAL

Kilbarron, Co. Clare, Bat Survey September 2025

Jim Minogue, An Doire.

Contents

1.1 Introduction to application

Planning Ref. No: Ref. No: P24/60352

APPLICATION: Permission for the following proposed development:

LOCATION:

1. to renovate existing derelict cottage and demolish back kitchen
2. Construct single and two storey rear/side extensions and separate storage shed/carport.
3. Modifications to exterior of existing cottage.
4. New wastewater treatment system and soil polishing filter

Retention Permission for

1. Site vehicle entrance
2. All associated site works

In a request for Further Information the Planning Authority stated the following.

1. Evidence of recent bat activity has been noted at various locations within the existing cottage. You are required to engage a suitably qualified ecologist to undertake a comprehensive bat survey of both the cottage, adjoining outbuilding and wider site. Survey work must be undertaken during the appropriate season (May to September inclusive)
   Please note that should the outcome of the bat survey indicate the requirement for a derogation licence, this must be obtained from the National Parks and Wildlife Service and submitted as part of the further information response.

1.2 Introduction to survey

In a request for further information/revised plans from Clare Co Co. Planning Authority, concerning a Permission for development, as outlined above, this survey was undertaken to address issues which would concern the Conservation Objectives of the population of Bat species utilising Kilbarron for foraging, roosting and commuting. Due to the potential disturbance arising from the proposed development and its location within a bat landscape, design and consideration of every aspect of the proposed development programme should consider possible or probable impacts on several bat species.

I Jim Minogue have been surveying bat species, particularly in the West and Midwest region since 2010, I have experience in Lesser horseshoe bats, in terms of monitoring and reporting, applying for derogation licences where required for this species and have studied their specific bat ecology, their habitat requirements as well as their annual life cycles. In relation to Lesser Horseshoe bats, I understand the international protection and importance of this species and its limitations in population distribution. The presence of bats in any landscape indicates good environmental conditions as they are bio-indicators suggesting clean undisturbed environments. It is considered that incorporating design features at the planning stage and regarding data and information gathered about the Kilbarron bat landscape and the species utilising it is the correct way to address issues regarding developing this site and conserving its utility for bats.

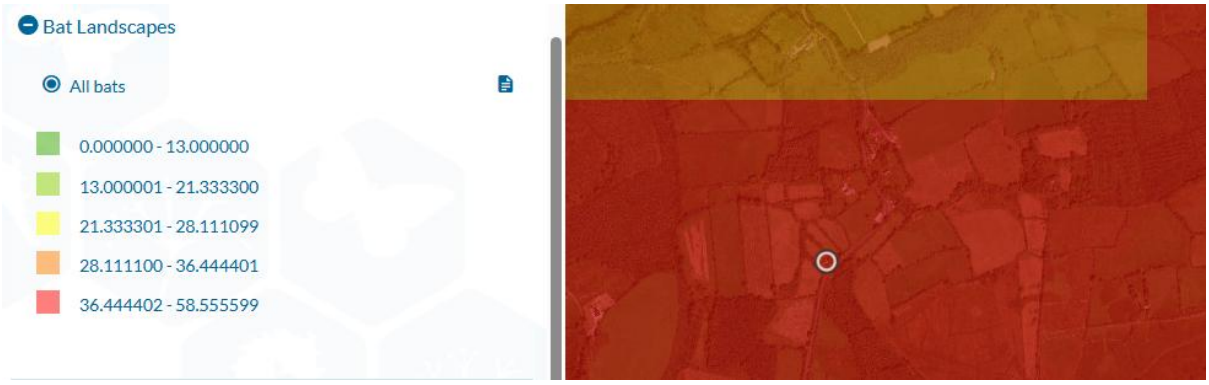
1.3 Desktop research.

The house located in Kilbarron has had a various history as any building of its age and extent would have. This ranges from being previously utilised as a farmhouse with adjoining farmyard and sheds, to being derelict, to its present cleared site with an application to expand and develop. The level of bat species activity present, it is assumed, would have increased with the declining levels of human activity since the house ceased being a full-time residence.

Prior to the site survey a review of existing information on bat roosts and local activity was undertaken. The national biodiversity database was searched for records of all bat species within a 10km grid of the site (R58). Five of the nine species of resident Bats have been recorded in this area. The following bat species were recorded:

- Daubenton's Bat (Myotis daubentonii)
- Lesser Horseshoe Bat (Rhinolophus hipposideros)
- Leisler’s Bat (Nyctalus leisleri)
- Pipistrelle (Pipistrellus pipistrellus)
- Soprano Pipistrelle (Pipistrellus pygmaeus)

Sat. 1. The Bat Landscapes Database (Biodiversity Ireland.ie) which was accessed as part of the desktop research indicates the habitats and landscape features to have the highest habitat suitability, from Biodiversity Ireland showing the site being of high value as habitat for all bat species.



The suitability index for different bat species is listed below:

All Bats	41.67
Pipistrellus pygmaeus	51
Plecotus auritus	63
Pipistrellus pipistrellus	57
Rhinolophus hipposideros	12
Nyctalus leisleri	52
Myotis mystacinus	25
Myotis daubentonii	48
Pipistrellus nathusii	3
Myotis nattereri	64

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places. The lesser horseshoe bat (Rhinolophus hipposideros) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011.

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976-2018). Under this legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the agreement of the National Parks and Wildlife Service (NPWS) and a derogation licence must be granted before works commence.

Photo 1. Cottage from the south

Photo2. Cottage from the north

Photo 3. Adjoining shed to be demolished

Sat. 2. Lesser Horseshoe Bat Landscape Suitability and Recorded Bat Roosts (Biodiversity Ireland)

Dot showing development location, this area appears to be less suitable than adjoining areas for this species.

1.4 Lesser Horseshoe Bats

Lesser Horseshoe Bat (Rhinolophus hipposideros)

Distribution in Ireland

The lesser horseshoe bat is confined to six western counties—Clare, Cork, Galway, Kerry, Limerick, and Mayo—with Clare and Galway hosting particularly strong populations. This distribution correlates with milder microclimates influenced by the Gulf Stream, which reduce frost frequency and duration, thereby supporting year-round insect availability. The presence of extensive cave systems in these counties further enhances their suitability for hibernation.

Roosting Ecology

- Summer Roosts: Typically found in old stone buildings with natural slate roofs, especially uninhabited structures offering warm apex zones.
- Winter Roosts: Underground sites including caves, mines, souterrains, and disused cellars.
- Roost Types:
- Maternity/Nursery Roosts: Occupied from April; birth occurs mid-June to early July.
- Satellite Roosts: Smaller aggregations near maternity sites.
- Transition Roosts: Used in spring and autumn.
- Night Roosts: Temporary resting sites during foraging.
- Male Roosts: Often solitary or in small groups, in less insulated structures.

NPWS monitoring confirms that roost selection is highly sensitive to microclimatic conditions, insulation, and disturbance levels. Roost integrity is critical for reproductive success and overwintering survival.

Foraging and Habitat Use

This species forages in cluttered habitats—dense woodland, scrub, and along linear features such as hedgerows, treelines, and riparian corridors. It is highly dependent on:

- Broadleaved and mixed woodland
- Linear commuting routes (e.g., stone walls, earth banks, hedgerows)
- Proximity to watercourses for insect-rich foraging zones

Recent Vincent Wildlife Trust research confirms winter foraging activity during mild spells, with prey including dung-associated flies and winter gnats. This underscores the importance of maintaining grazing regimes and avoiding pesticide use near known roosts and foraging corridors.

Echolocation and Flight

The lesser horseshoe bat emits high-frequency calls (105–115 kHz), enabling precise prey detection via Doppler-shifted echoes. However, these calls have limited range, necessitating close navigation along physical landscape features. Its short, broad wings allow slow, highly manoeuvrable flight suited to dense vegetation.

Reproductive Strategy

- Delayed fertilisation: Mating occurs in autumn/winter; ovulation and pregnancy begin in spring, aligning birth with peak insect availability.
- Low fecundity: One pup per year; not all females reproduce annually. Juvenile survival is vulnerable to cold spells and habitat disruption.

Population Status and Threats

Estimated Irish population: ~14,000 individuals.

Status: Stable to increasing, though vulnerable to prolonged cold weather, especially juveniles.

Key threats:

- Loss or modification of roosting structures
- Fragmentation of commuting corridors
- Reduction in foraging habitat quality
- Climate extremes

Legal Protection and Planning Implications

- Protected under the Wildlife Act (1976) and Wildlife (Amendment) Act (2000)
- Listed in Annex II of the EU Habitats Directive
- Special Areas of Conservation (SACs) designated for this species are monitored annually
- Landscape modelling (Bat Conservation Ireland, 2011) confirms that the current western range is the only suitable habitat in Ireland

There is a significant hibernation roost for lesser horseshoe bats within Newgrove House located about 12 km from the site. There is some evidence that this species is expanding its range with a Maternity Colony located not far from this site (NPWS). There were recordings of Lesser Horseshoe bats utilizing habitats throughout the site. One individual of this species was recorded using the attic of the cottage during both dusk and dawn surveys conducted over several days and nights. A static recorder was put in place for several days monitoring this individual. Any further works and lighting developments would require mitigation and design considerations to enable bat species to undertake their annual lifecycle. This requires connectivity throughout the

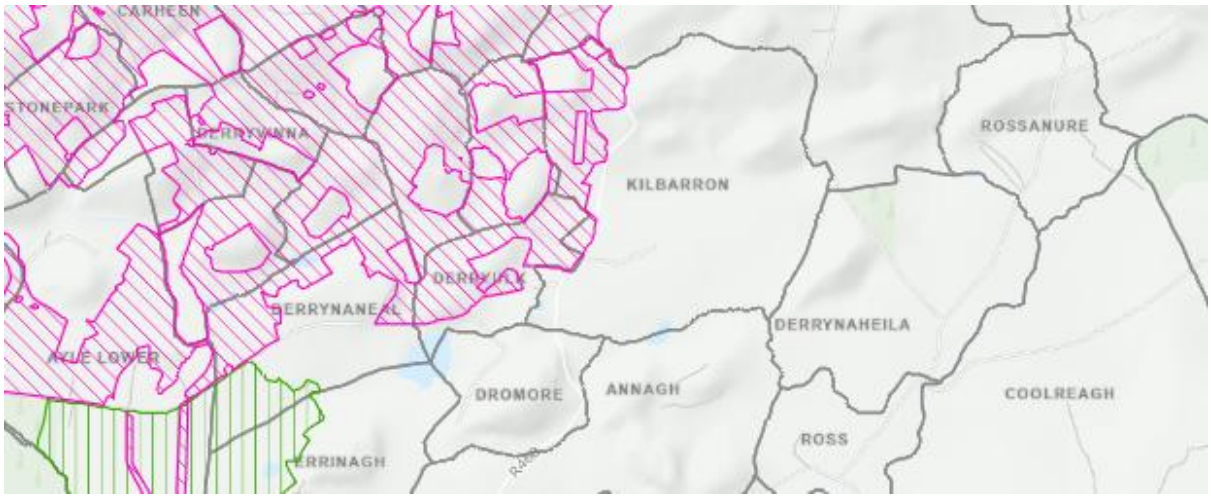
landscape and the construction of a replacement roost. Other species were recorded utilizing the site, however no other roosts were in the cottage or the adjoining shed. A Derogation license is required for any developments which could impact on bat species. A derogation license will follow on from the results of this survey.

Sat 3. Showing landscape features and habitat around the site.

1.5 The surrounding environment

The habitats occurring within the site are described below. All habitats are classified in line with the Guide to Habitat in Ireland (2000).

- BL3: Built land and artificial surfaces
- GA1: Improved grassland
- GS2: Dry meadows and grassy verges
- GS4: wet grassland
- WL1: Hedgerows
- WS1: A mature treeline
- WD4: Conifer plantation
- WN1:Oak birch-holly woodland
- WN2:Oak ash hazel woodland



Map 1. showing Kilbarron Townland in relation to NPWS Designated Areas in the vicinity. The extensive Slieve Aughty Mountains SPA is to the west.

The grassland and artificial surfaces within the site do not provide suitable foraging habitat for bats; the hedgerows do represent suitable commuting and foraging habitat for all bats. With woodland and hedgerows being important for these functions also.

2. Site Description & Study Area

The House is surrounded by a hardcore yard and enclosed grassland. The house is a stone structure with a slate roof along with a concrete and flat roof extension. There is a stone shed to the southwest, this is to be demolished, there was some bat activity recorded at this location, but no roosting activity. Much of the proposed development is planned at this side of the existing cottage. It was considered for mitigation purposes but screened out due to its proximity to the planned development.

2.1 Bat Detector Surveys methodology

Monitoring of the Structure was undertaken between the 1st and the 5th of September 2025 for this research. A daytime inspection of the house was undertaken. Bat species utilise features and structures within the landscape throughout different parts of the year for varying parts of their annual cycle. To understand the seasonal variation of roost requirements the below is useful (Table 1).

Roost Type	Definition
Day	Where individuals or small groups of male's rest/shelter in the day but are rarely found by night in summer.
Night	Where bats rest/shelter at night but are rarely found in the day.
Feeding	Where individuals rest/feed during the night but are rarely found during the day.
Transitional	Used by a few individuals for short periods of time prior to or following hibernation.
Swarming	Where large numbers gather in late summer to autumn. Important mating sites.
Mating	Where mating takes place in late summer to winter.
Maternity	Where females give birth and raise their young.
Hibernation	Where bats are found during winter (constant cool temperature and high humidity).
Satellite	An alternative roost found in close proximity to the main nursery colony.

Table 1.

In general.

April surveys may detect transitional roosts used by bats following hibernation and prior to summer roosting.

May-August surveys may detect maternity colonies and male/non-breeding female summer roosts.

August surveys are best to determine maximum counts of adult and juvenile bats.

August – October surveys may detect swarming and mating bats.

September and October surveys may detect transitional roosts used by bats following the dispersal of maternity colonies and prior to hibernation.

Day, night, feeding and satellite roosts may be found anytime between April and October.

November – March surveys may detect hibernacula.

The inspection surveys consisted of a thorough search of all accessible areas of the building, the exterior and interior, searching for bats or any evidence of use. Numerous structural features internally including crevices in walls, doors, windows and timber joists could support roosting bats. It was noted that some features around the house could potentially be utilised by bats species. These were located around the chimneys and attic of the roof. In general, the house was in fair condition yet had slates missing on the north side. Extensive site clearance works had been undertaken which may have reduced connectivity to the broader landscape.

In the inspection

Such evidence includes:

- The presence of droppings within the building and on surfaces around the exterior of the building, the presence or lack of cobwebs; indicating internal flight.
- Urine staining beneath access points
- Scratch marks around access points
- Visual signs of roosting bats

2.2 Results

All accessible surfaces were inspected for bat droppings and crevices were inspected for the presence or evidence of roosting bat species.

An external view of possible flight paths and commuting areas were observed with connectivity to linear features of the landscape noted.

A static Batlogger monitor was installed on the 1st of September 2025 on the stairwell within the house for the duration of the survey. Bat droppings were observed within the attic.

The results are below and discussed.

A dusk survey was conducted over the 1st of September, and a dawn survey was undertaken on the morning of the 2nd. A static monitor was put in place recording to the 5th of September 2025; this was towards the end of the bat activity season. A Batlogger M2 handheld monitor was utilised by one surveyor for an hour before sunset and for two hours afterwards for the dusk survey. For the dawn survey the structure was monitored

for an hour before sunrise. A further daytime site visit was undertaken on the 8th of September which confirmed that the roost was not being utilised at that time.

Ultrasonic bat detectors were also used during the survey to aid the detection of bats. Sweeps were made at lower to higher frequency to establish the presence or otherwise of all potential bat species.

The following equipment was used:

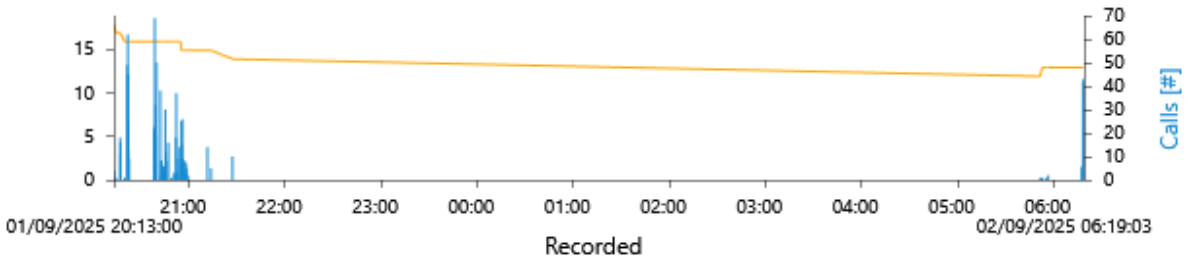
- A Ciel Electronique CDP102 R3
- Batlogger static and handheld M2
- High-powered hand torches and head torches.
- Digital camera, scopes and Echo Metre Touch 2 (for Android)

Bats were identified in the field to species level, *Myotis* sp. were identified to family level. All species, that were recorded at less than 50% quality were filtered out. This was to enable to ascertain the exact bat species encountered and their relationship with the structures surveyed and how the structures could be utilised within the broader bat landscape.

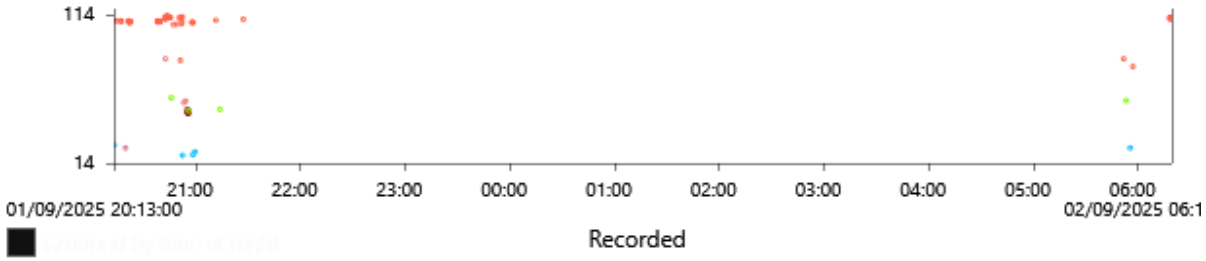
During hand-held bat surveys species were identified in real time by recording peak frequency. Notes were also made on the time of recording and type of behaviour of each bat encountered during the activity surveys, such as flight type and altitude.

Limitations

The bat survey was undertaken at the start of September just towards the end of the bat activity season. Weather conditions were optimal for bat surveys, with good visibility and calm conditions. The nighttime temperatures were average for the time of the year.



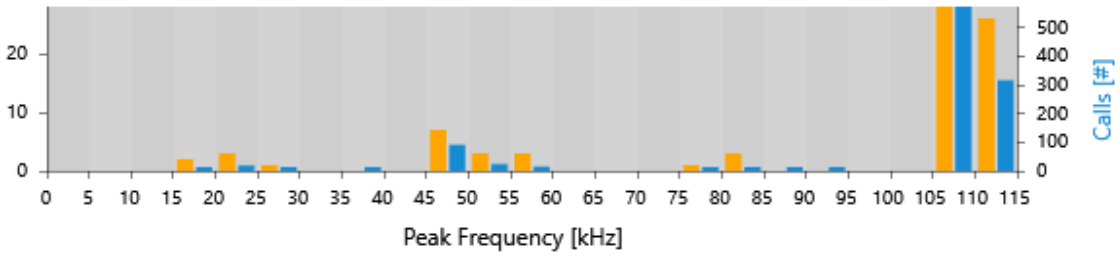
Activity and times around the site utilising a handheld Batlogger M2



The above graph shows species and activity times over the 1/9/25 and the 2/9/25

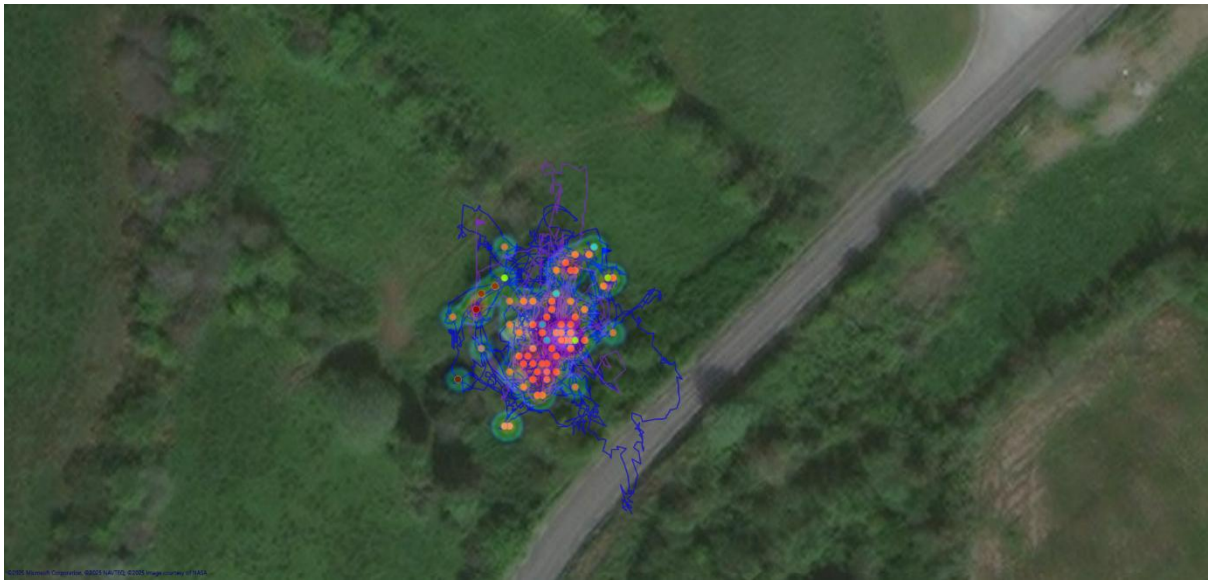
Myotis mystacinus	4
Nyctalus leisleri	5
Pipistrellus pipistre	6
Pipistrellus pygma	5
Plecotus auritus	1
Rhinolophus hipp	56

This table shows the species monitored onsite. The colour codes on the above legend are used for this distribution map



Above graph showing the frequency of calls recorded.

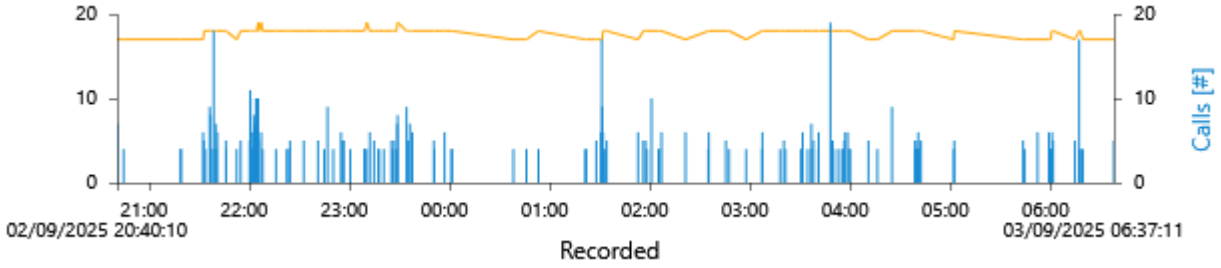
Sat 3. Recording of bat activity by species

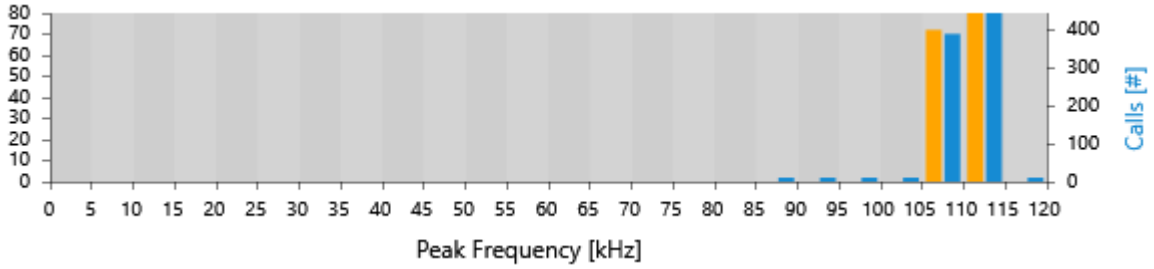


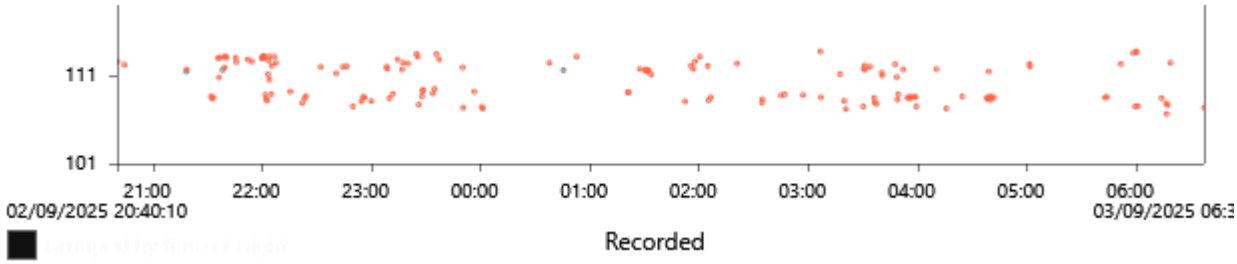
Sat 4. Recording of bat activity showing heat and tracks.

Static Results4/9/25

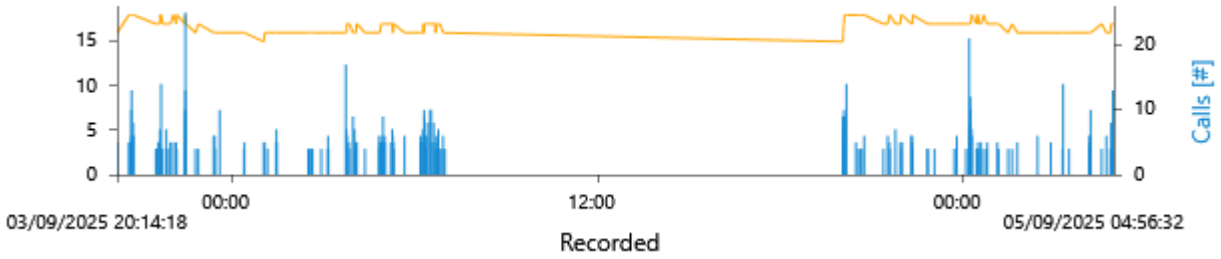
Showing data from the 1st to the 2nd of September

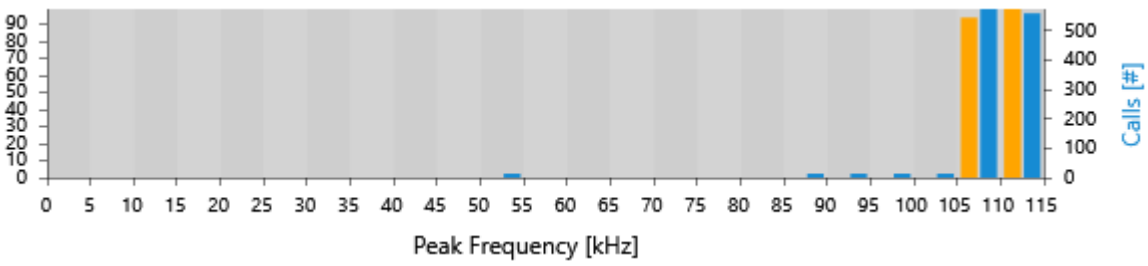






With further data between the 2nd and the 5th of September 2025





This was all one individual Lesser horseshoe bat.

In all six out of the nine resident bat species were monitored during the survey.

The applicant had left the front door ajar to facilitate swallows nesting within the cottage. This is from where the observed bat accessed the attic roost, accessing the roof space through an open door on the stairwell. There was little evidence of bat activity within the main structure, except for this individual with warming up flights, the survey concentrated on the roof area as this seemed to offer the greatest possibility for roosting bats. On entering the stairwell one Lesser horseshoe bat was observed on the slate apex above the stairs.

The visual daytime inspections yielded information which would aid the electronic surveying. The below photo was taken on the left loft room, identified as a Lesser Horseshoe bat.


photo 4. showing Lesser horseshoe bat in loft (Arrow).

The handheld monitor found good bat activity around the house, this was shown by the results below, with recordings to the left and calls made to the right, with significant

The following bat species were recorded in the 10km S46 square on Biodiversity Ireland Maps

- Brown Long-eared Bat (Plecotus auritus)
- Leisler's Bat (Nyctalus leisleri)
- Common Pipistrelle (Pipistrellus pipistrellus)

- Soprano Pipistrelle (Pipistrellus pygmaeus)
- Natterers bat (Myotis mystacinus)
- Lesser Horseshoe bats (Rhinolophus Hipposideros)
- Whiskered bat (Myotis mystacinus)

This survey confirmed the presence of 6 species of bats around the site.

- Lesser Horseshoe bats (Rhinolophus Hipposideros) were the species most recorded
- A single Lesser Horseshoe bat was recorded exiting the roof space on the evening survey. It exited the cottage through the front door and went north from the site.
- At the dawn survey a single Lesser Horseshoe bat was recorded returning to the loft of the house through the front door.

These calls were made surrounding the structure.

In total 6 bat species were monitored around the site; these other species were commuting or foraging. Soprano and Common Pipistrelle, Leisler bats, Brown long-eared bat, Lesser horseshoe and whiskered bat were all utilising the site.

Photo 5. showing cottage from where the roost /loft will be constructed

3. Evaluation

A dusk survey and a static survey in early September confirmed bats utilizing the site and the adjoining hedgerows that bound the site to the West, East, South and North. Through both surveys Lesser Horseshoe bats were the most prevalent species, Common pipistrelles were the second most common recorded. Leisler and Soprano pipistrelle bats were jointly the third most prevalent.

One Lesser horseshoe bat was using the attic above the stairwell as a transitional roost. As this was monitored on the dusk survey, it was decided to return to undertake a dawn survey. A single Lesser horseshoe bat returned to roost before sunrise.

There are always some limitations in concluding use of a building based on a few surveys, with one surveyor and a fixed static survey conducted, as well as a hand-held Batlogger, any bats present were recorded. The presence of droppings and the lack of cobwebs present suggested bat use of the attic internally. Access was through the front door of the cottage and up the stairs. Prior to the clearing of the site and the installation of a yard, with less human activity on site, it is probable that there was previously greater bat use of the site.

Considering these findings under Regulation 54 of the European Communities (Birds and Habitats) Regulations 2011 (S.I. 477 of 2011) a derogation licence will be required to proceed with the works and renovations and comply with the requirements of the provisions of Regulations 51, 52 and 53 of the same Regulations.

3.1 Recommendations

The surveys undertaken demonstrate the significance of the local landscape in particular the existing hedgerows and treelines that bound the site, these habitats are significant and important linear features for the local bat community and are of high value for foraging and commuting bats.

There are a variety of mature broadleaved treelines and hedgerow surrounding the site. These are to be maintained and enhanced. There should be minimum or no light associated with the storage shed/carport.

With reference to the Bat Mitigation Guidelines the unmitigated effect of the potential impacts associated with the works will represent a certain impact on Lesser horseshoe bats. There being no signs of a maternity or winter roost, it is supposed that the house in its unused state is providing temporary roosts. With the house being brought back to habitable condition It is suggested that these effects could be mitigated against, depending on the outcome of an application for a derogation licence. The present

location of a temporary roost is in the attic space of the cottage. It is proposed to establish other sustainable roost locations within the site. Due to much of the planned extension is around the stone cottage its suitability as an alternative roost was discounted. There were no bats recorded roosting in the stone shed. The creation of a new roost in the loft space of the storage shed was considered a more suitable locations as this area can be landscaped to connect to hedgerows and treelines and have less human activity enabling dark corridors to the roost from the wider landscape.

3.2 Mitigation

The creation of a roost location within the loft of the proposed carport/storage shed is the main mitigation measure to ensure no loss of bat roosts to this development. It is proposed to create a loft space over the storage shed for bat species to roost. The access to the loft would be through the carport and through an opening on the southwest gable. The installation of a loft door with access for flying bats opening onto the carport would also allow bats to utilise the carport space for emerging warmup flights. To ensure the use of this newly constructed roost a dark corridor will be established to the northwest of the carport/storage shed with enhanced planting surrounding this structure and linking it to the hedgerows to the northeast of this building along with a dark corridor along the northern and eastern boundary of the site at the back of the shed. It would be recommended that a dark zone with pollinator friendly plants be established around the shed/carport on the west, north and east side of the shed/carport, with no lighting installed without sensers and following the lighting mitigation below.

Due to the roost as surveyed containing just one individual within the cottage attic and using the bat mitigation guidelines. It is felt that the provision of new roosts facilities will suffice as outlined in the bat mitigation guidelines (table below). The loft space will exhibit the following.

Structural Design Recommendations

1. Roosting Space Configuration

- Dimensions: Minimum internal loft space of 4m x 4m x 2.5m high is recommended.
- Roof Apex: Prioritize a warm apex area with exposed ridge beams for hanging.
- Materials: Use natural slate roofing and lime-rendered stone or block walls to retain heat and regulate humidity.
- Access Points: Install 2–3 bat access points sheltered elevations, ideally south-facing. Avoid mesh or flaps.

2. Internal Features

- Hanging Surfaces: Include horizontal beams or rough-textured surfaces for bats to cling to.
- Landing Zones: Ensure clear flight paths inside—no insulation blocking rafters or clutter near entry points.
- Insulation: Use breathable materials; avoid spray foam or synthetic barriers that trap moisture.

3. Environmental Control

- Ventilation: Passive vents to maintain airflow without draughts.
- Lighting: No artificial light inside or near entry points.
- Disturbance: Designate the loft as a no-access zone during maternity season (April–September).

Landscape Integration

Commuting Corridors

- Preserve or plant hedgerows, treelines, and stone walls connecting the loft to nearby woodland or watercourses.

Foraging Habitat

- Maintain adjacent scrub, broadleaved woodland, and riparian zones. Avoid pesticide use and support cattle grazing to encourage dung fly populations.

Seasonal Use and Monitoring

- Spring–Summer: Maternity roosting; females birth and rear pups.
- Autumn–Winter: Dispersal to hibernation sites; monitor for mild-weather foraging.
- Monitoring: Consider installing a bat box camera or working with Bat Conservation Ireland for population tracking.

New Bat Roost

The replacement roost being planned to mitigate from probable disturbance to a bat roost. This is in the loft area of the proposed storage shed This proposal aims to create a purpose-built loft roost considering roost requirements for the lesser horseshoe bat, a species of conservation concern in Ireland and protected under the Wildlife Act (1976), Wildlife (Amendment) Act (2000), and Annex II of the EU Habitats Directive. Kilbarron lies within the known range of this species, and the roost will contribute to regional

conservation efforts and habitat connectivity. This loft roost will also so have utility as a roost for other bat species utilising the site. This roost will be a new build and would;d offer an alternative sustainable roost space for bat species utilising the site and surrounding landscape for the foreseeable future.

2. Roost Design Overview

The roost will be in the loft space above the newly constructed storage shed, as outlined in the submitted architectural drawings. The structure includes a gable roof with a peak height of 4075 mm, providing optimal conditions for a warm apex roost.

Key Design Features:

- Internal loft dimensions: [4.8m x 3.7m]
- Roofing: Natural slate to retain heat the height of the loft will be 2m.
- Wall finish: Lime-rendered block or stone for breathability
- Internal features: Exposed ridge beams for hanging; no insulation obstructing rafters
- Lighting: No artificial light within or near the roost
- Access restriction: No human access during maternity season (April–September)

3. Bat Access Points

To facilitate direct flight entry, the following access points will be constructed:

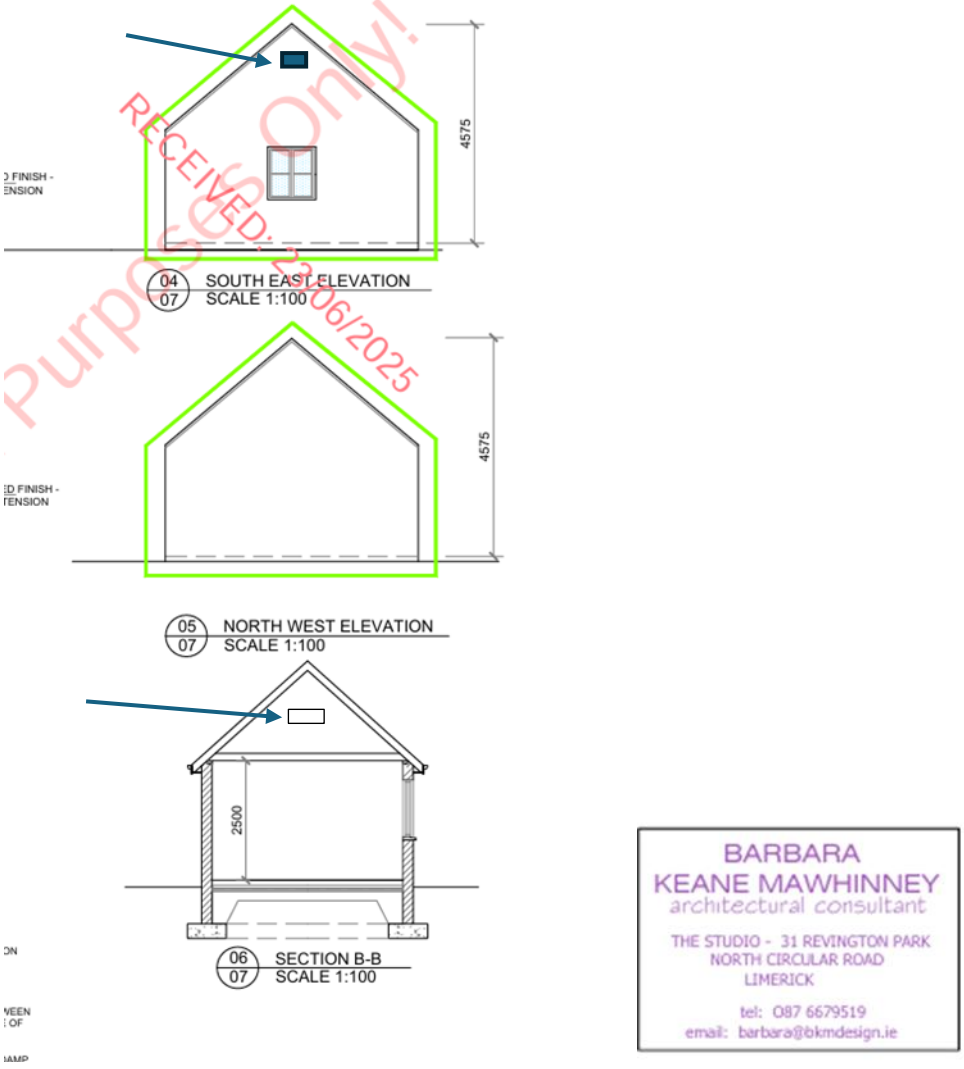
All access points will be constructed using untreated timber surrounds and will be free of mesh or obstructions. Flight paths will be kept clear of vegetation and architectural barriers.

4. Habitat Integration

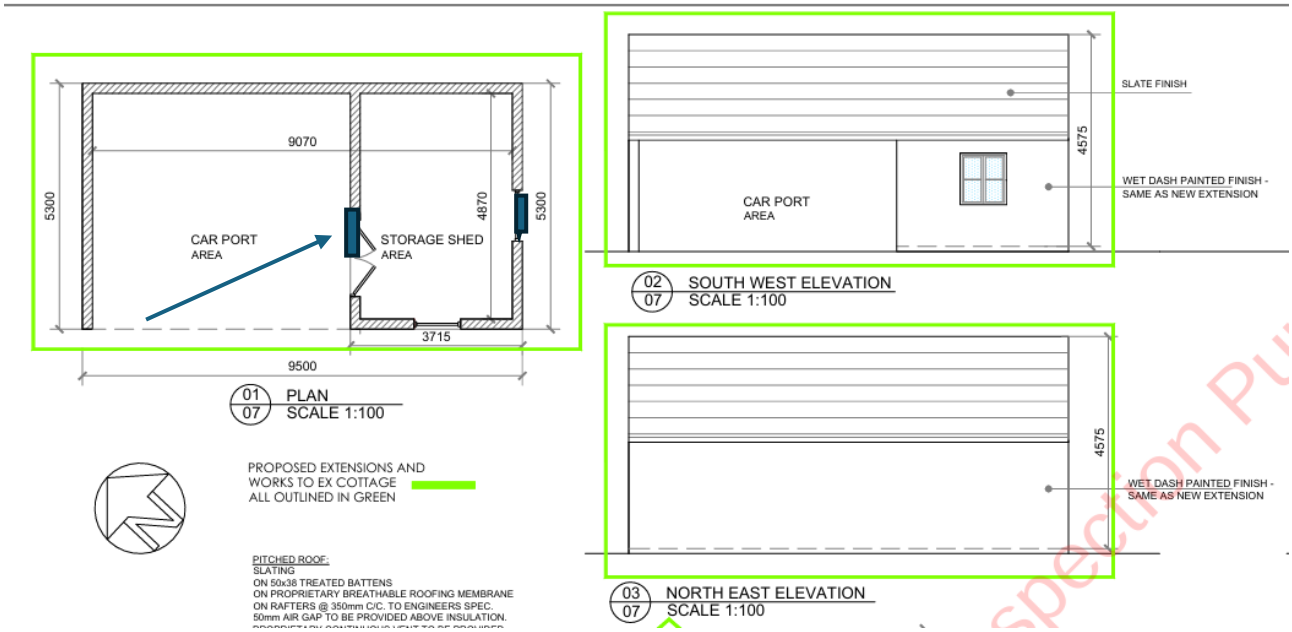
The site includes hedgerows, treelines, and nearby scrub, which will be preserved and enhanced to support commuting and foraging. No pesticide use is planned near the roost, and grazing regimes will be maintained to support dung-associated insect populations.

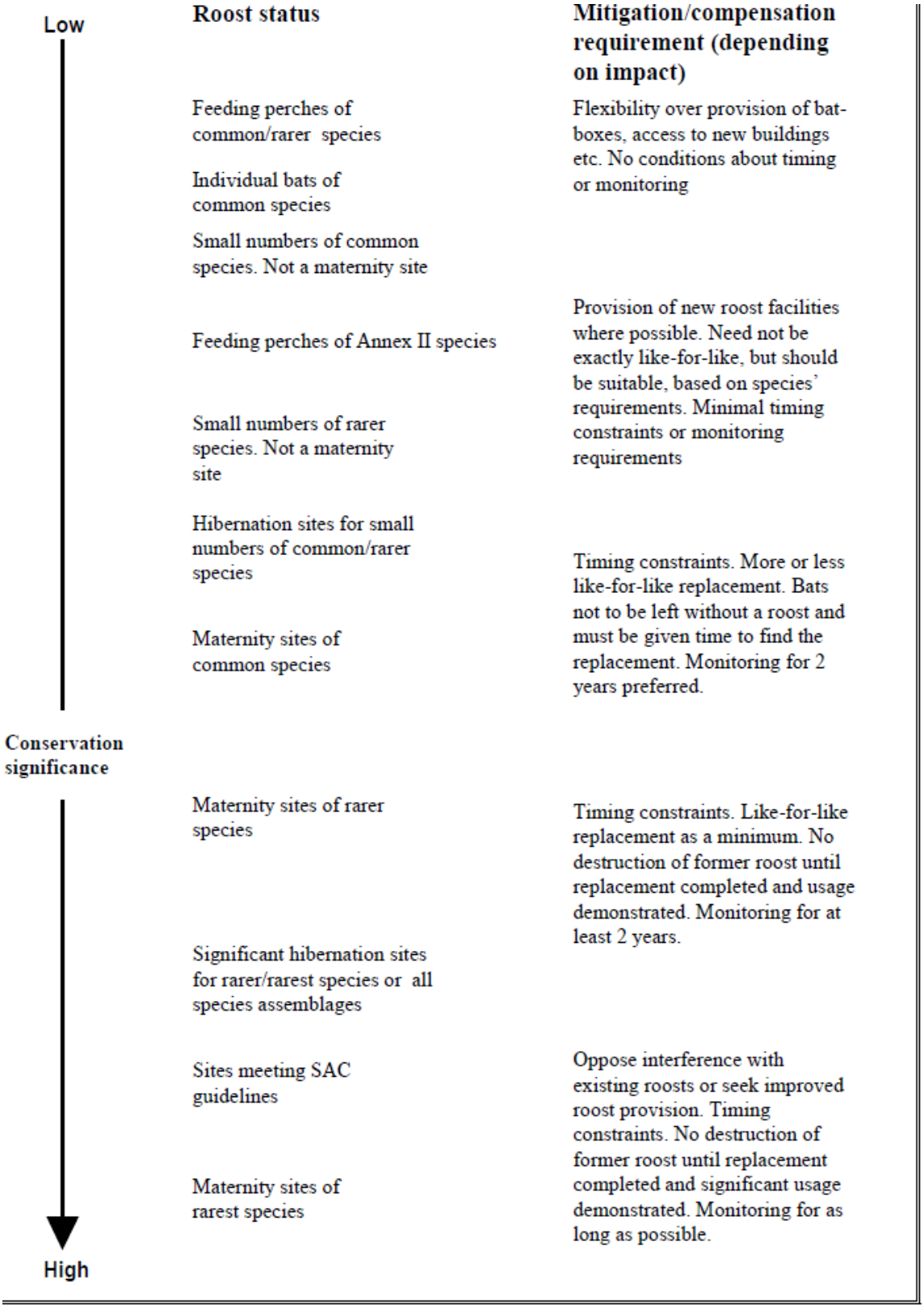
6. Planning and Legal Compliance

This proposal aligns with the objectives of the Clare County Biodiversity Action Plan and supports the conservation goals of designated SACs in the region. All construction will comply with relevant wildlife legislation and planning guidelines.



Plan 1&2. showing access points to the new roost in the loft space (line arrow).





gure 20 Guidelines for proportionate mitigation. The definition of common, rare and rarest species requires regional interpretation.

Table from Bat Mitigation Guidelines V2.

Access, size of roost space and structure

• Crevice-dwelling bats can crawl into their roosts via small gaps in the range of 15–20mm high (h) by 20–50mm wide (w). The roost area should maintain a crevice of this approximate size that the bats can roost between. The area this roost provision covers can be small but about 1m2 would be useful for summer nursery roosts. The height of entry can be from 2–7m.

• Roof-void dwelling bats require similar dimensions to access the roost but typically need timber joists or beams on which to roost. The height of entry can be from 2–7m.

• Bats needing a flying area require the same access dimension as mentioned above, 15–20mm (h) x 20–50mm (w) situated over 2m in height. The roosting area should not be trussed, to allow flight.

• Horseshoe bats need a larger access so that they can fly (instead of crawl) directly into the roost. Lesser horseshoe bats need an access of 300mm (w) x 200mm (h). As above, the roosting area should not be trussed, to allow flight, and should ideally be about 2.8m in height and 5m in length and width.

The access point should be constructed to give these dimensions 30cm x 20cm constructed as a slot in a loft door in the carport area (photo 6 below), or as an entry point in the southeastern gable (Photo 4 below). Alternately a raised slate access point in the roof would enable bat access if a gable access was not possible (photo 5. Below).

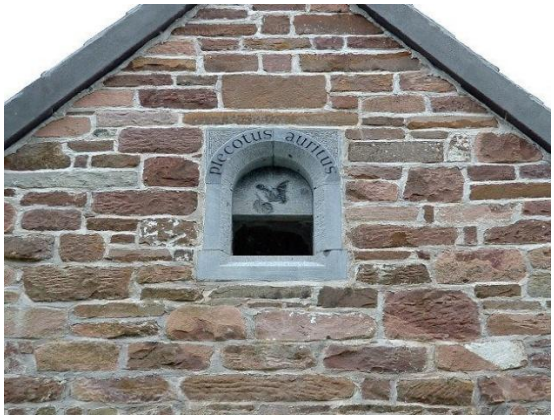


Photo 6. Example of a gable access point for Brown long eared bat which wouold suffice for Lesser horseshoe bat.

Photo 7. showing alternative access in roof for Lesser horseshoe bats to access loft space.

photo 7. Showing access through a door which is predator proof.

Entrances can be made predator-proof by installing a 'tip tray' as in photo 6 above or the addition of anti-climb surfaces.

Baffles can be installed to reduce draughts and light into the building see photo 7 below.


photo 8. showing a baffle to reduce drafts and light into the roost.

Connectivity to the larger landscape would also be important, this is created by the maintenance of linear features such as treeline or hedgerows, ideally this access gap should be under 5m wide, as some bat species do not cross open non-linear feature areas.

The best times for building operations in a bat landscape, are spring and autumn. At these times of the year the bats will be able to feed most nights and may be active or torpid during the day, depending on weather conditions, but will not have begun giving birth. Active bats will usually keep out of the way of any operations.

Timber treatment should use appropriate treatments that are not damaging to mammals, see the following guidance: Bats &Pesticides: Guidance Notes for Planners, engineers, architects, pest control companies and developers (Bat Conservation Ireland 2014).

It would be suggested that the vegetation on the boundaries of the site be maintained, as well as being enhanced with the inclusion of pollinator friendly plant species. A screening hedge between the shed and extended house would further screen the loft roost and create shelter from the southwest. This would aid passage through to the larger countryside. Lesser horseshoe bats do forage up to 2.5km from roosts, increasing connectivity through the landscape would be an important way to access suitable habitat for this species.

The specific foraging sites favoured by this species of bat are broadleaved woodland and riparian vegetation. There is a positive association for several bats including Lesser horseshoe, between the extent and proximity of broadleaved woodland and roost locations. Having such woodland to shelter, screen and provide foraging for the bats utilising the landscape is of considerable importance.

Hedgerows can also be both a barrier to disturbance and a screen for any light or background noise. The management of the hedgerow for its stated objectives is of importance. It should exhibit the following in terms of creating beneficial conditions for bats.

The hedge should be wide and tall (at least 2.5m) comprising native species and ideally pollinating plants. To add the screening effect of the hedge, if needed, it is thought to include holly at a relatively high-density giving year-round screening of the development. Willows and blackthorn give early season nectar for insects, hawthorn, bramble and rose give summer nectar and ivy gives autumn nectar. These species also produce berries and create habitat for a several species of insect and birds. The hedge planting planned is illustrated on the plans below (in green). They comprise of a hedgerow around the site and the provision of a dark corridor to the northeast of the shed with screening of the shed from the house

Cutting sections of the hedge in rotation in late winter would benefit wildlife, as opposed to routine annual indiscriminate cutting.

BARBARA
KEANE MAWHINNEY
architectural consultant
THE STUDIO - 31 REVINGTON PARK
NORTH CIRCULAR ROAD
LIMERICK
tel: 087 6679519
email: barbara@bkmdesign.ie

Commuting Routes

Hedgerows are a good way to link foraging and commuting routes for bat species. When there are standard trees present it can increase the abundance and diversity of moths as prey. Due to the increasing incidence of ash-die-back disease there will be older standard trees that will die in the coming years. Oak trees planted in tree guards to prevent browsing by deer, would be a suitable species on heavier soils, as would alder or birch. Holly, wild cherry, elder, crab apple and hazel would be suited to the lighter soils. Oak is an attractive tree for lesser horseshoe bats, in terms of foraging. There also stone wall features around the site, these walls have ivy and bramble and act as commuting and foraging routes.

The linear features present consisting of stone walls, hedgerows and treelines are all important for bat species commuting and foraging. The removal or loss of these features therefore have the potential to affect local bat species. Very small amounts of hedgerow/treeline removal are proposed as part of this development. A suitable mitigation measure, to ensure minimum disturbance to bat species would be the enhancement and restoring of hedgerows on site. With the establishment of a boundary hedgerow around the site bats can commute around the site keeping connectivity in the landscape. The opportunity to provide additional ecologically appropriate planting and provide for pollinator friendly planting in line with the All-Ireland Pollinator Plan (particularly night scented or moth friendly planting) could provide additional foraging resources for bat species within the area. It would also increase commuting pathways.

Lighting

The reduction and minimising of additional light and light pollution is a key mitigation measure, in addition to bat friendly lighting structures and bulbs. The avoidance of additional light or light spill on the field boundaries is of particular importance in this regard, with particular attention paid to the western boundary – the provision and maintenance of a dark corridor along this feature is recommended.

Guiding principles in design should be that lighting should only be erected where it is needed, in use for the required time that it will be utilised and only at levels that

enhance visibility. Any permanent lighting without timers or sensors should not be included in the lighting design for this development in this sensitive bat landscape.

Using the minimal lighting required for safety, there should be no excessive lighting, both in time duration and spatial spread. Never illuminate commuting or foraging or roost areas. Minimise light spill and do not utilise bare bulbs or any up lighting. The linear features formed by the boundary hedgerows and treelines are important for bats commuting and foraging. The retention and enhancement of these features is an important element of this report.

Light should be spread below or near the horizontal - flat cut off lanterns and shaded down lighting achieve this.

Narrow spectrum bulbs should be used; this reduces the number of species affected by artificial lighting. Light should minimise the amount of ultra-violet and white and blue wavelengths in the light spectrum. This avoids attracting insects that might otherwise be in foraging areas and available as prey.

Lights should peak higher than 550nm, glass shading covers can be used to filter UV light. White LED lighting does not emit UV, the glare off these can disturb some bat species.

Avoid using reflective surfaces under lights, such as pale flagstones or limestone chips.

No light should be directed towards hedgerow vegetation.

It is important to note that the winter when most lighting is required is also the dormant period for bat activity.

Lighting will be concentrated on the two access points to the dwelling. These lights should be utilising the design approaches outlined above and should operate on sensors. There will be no permanent lighting or light spill on vegetation associated with commuting, foraging routes.

Lighting factors are important considerations in planning for bat activity generally the following principles should be observed.

- Only illuminate what needs to have light directed upon, for instance a pathway, no up lighting or floodlighting to reduce lighting spill onto vegetation or trees.
- Reduce light levels.
- Reduce the height of lighting to enable bats to commute and forage above the height of the lighting installed.
- Shielding of lighting, this allows buffers to be placed between natural features or flight paths.

- The type of lighting employed: warm coloured light is preferable to colder types; the illumination of UV light is recommended. LED lighting has no UV.
- Lighting controls can be utilised to reduce the timing of active lamination, these could be as motion sensors or simply reducing lighting intensity at dusk/dawn, when bats may be commuting and foraging.

Appraisal Of Mitigation and tests for Derogation Application

Application of Derogation Tests

Test 1: Imperative Reasons of Overriding Public Interest

This application is made under Regulation 54(2)(c), citing imperative reasons of overriding public interest. The proposed development involves the renovation of a derelict cottage to provide housing for a local resident with a genuine housing need. The structure is currently uninhabitable and deteriorating, and its restoration supports rural settlement, prevents dereliction, and aligns with Clare County Development Plan objectives.

The attic of the cottage hosts a transitional roost for Rhinolophus hipposideros, confirmed during surveys in September 2025. While the works will remove access to this roost, the project includes a purpose-built replacement roost in the loft of a new storage shed. This new roost is designed to exceed the ecological functionality of the existing space, offering improved thermal stability, flight access, and landscape connectivity.

The public interest in providing sustainable housing and preventing structural decline outweighs the temporary impact on a single transitional roost, especially given the absence of maternity or hibernation use and the robust mitigation strategy proposed.

Test 2: Absence of Alternative Solutions

Three alternatives were considered and objectively ruled out:

- Do-Nothing: Prevents renovation and safe habitation. The attic roost is deteriorating and will become unsuitable over time.
- Use of Stone Shed: Located adjacent to the development footprint, subject to frequent human activity, and structurally unsuitable due to low roof height and predation risk.
- Bat Boxes: Inappropriate for R. hipposideros, which require direct flight access into enclosed spaces with stable microclimates.

The chosen solution — a purpose-built loft roost — offers the best outcome for both conservation and development.

Test 3: Impact on Conservation Status

The roost identified is transitional, used by a single individual, and not a maternity or hibernation site. The replacement roost will be constructed to meet species-specific requirements, including:

- Dimensions suitable for flight and hanging
- Natural slate roofing and lime-rendered walls
- Multiple access points with predator-proofing
- Integration with hedgerows and dark corridors
- No artificial lighting or human access during sensitive seasons

These measures ensure no adverse effect on the conservation status of R. hipposideros and contribute positively to regional habitat connectivity. Similar mitigation has proven successful in other Irish projects, including the Galway Ring Road and Westport Greenway.

4. Conclusion

Incorporating the above mitigation measures at the design stage would benefit wildlife in general around the site, as well as bat species. While habitat loss is an important driver of declining wildlife in Ireland, habitat loss and Climate change are also an important driver that needs to be addressed across all sectors, especially in design.

The provision of a roost in the loft of the storage shed would provide opportunity for roost spaces to be established within the site following the works being undertaken on the cottage.

The maintenance of the commuting and foraging corridors and provision of an appropriate buffer around these linear features should maintain the overall connectivity within the wider landscape.

The surveys have shown the active use of the cottage and site and its landscape features that bound this site for roosting, foraging and commuting; the mature trees may also support roosting bats at different times of the year. The above mitigation measures are outlined to reduce the potential adverse effects on local populations of bat species, protect known roosts and increase and enhance available habitat.

Jim Minogue BSc, MA.

andoire@gmail.com

0851634879

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Identifying guide to Ireland's Bats Bat Conservation Ireland

National Biodiversity Data Centre

Exploring Irish mammals