Bat Survey and Assessment

Killaha East

Kenmare

Co. Kerry

Report prepared for Liz Keeman and Aidan Crowley

By Karen Banks MCIEEM

5th August 2025

Greenleaf Ecology

Tel: 0834218641
Email: greenleafecology@outlook.com

Contents

Appendices

List of Figures

List of Plates

List of Tables

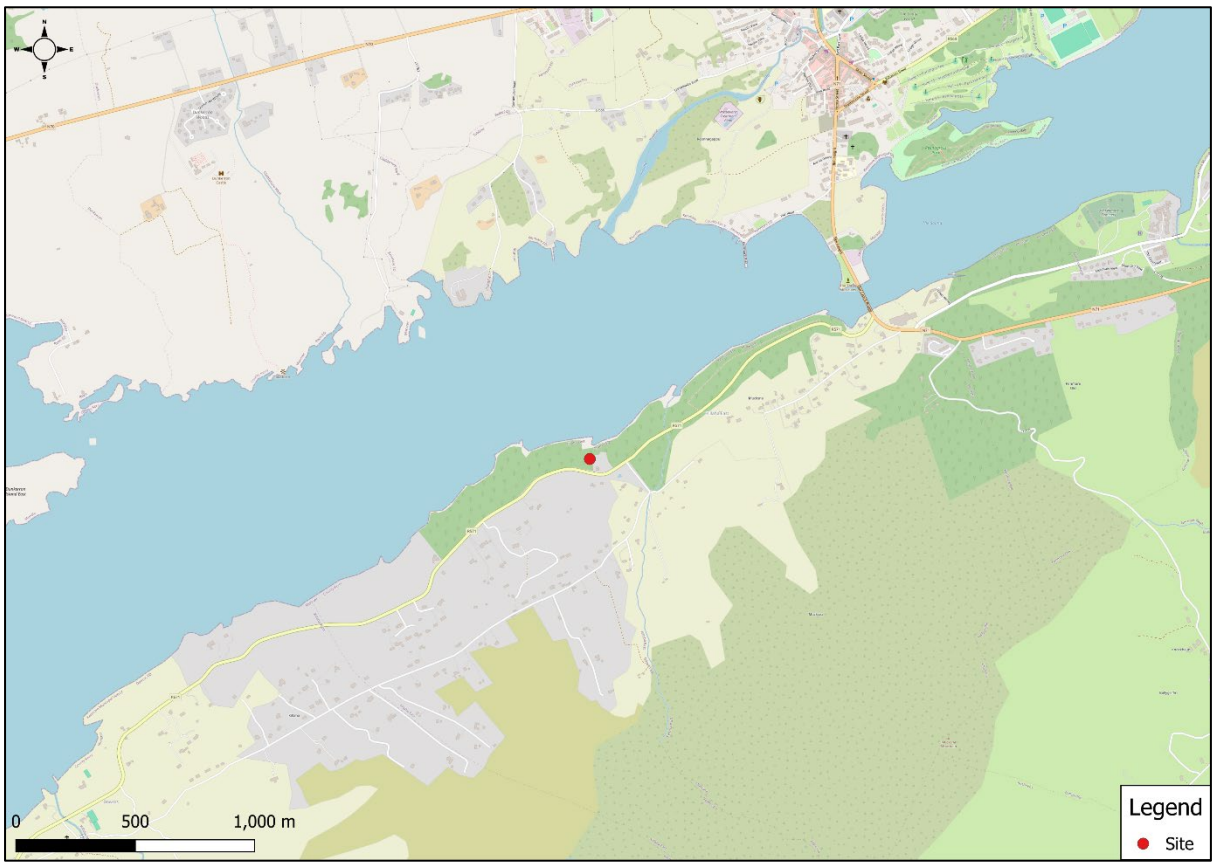
1 Introduction

This report has been prepared by Karen Banks, Greenleaf Ecology, at the request of Liz Keeman and Aidan Crowley. Planning consent is being sought from Kerry County Council for the demolition of a dwelling house and former restaurant building at Killaha East, Kenmare, Co. Kerry.

A protected species survey of the proposed site, comprising a bat survey, was undertaken in response to a request for further information from Kerry County Council (Planning Ref: 2460816).

The site is located in the townland of Killaha East, as illustrated in Figure 1.1.

Figure 1-1: Site Location Map



1.1 Description of the Proposed Project

Permission for (a) the demolition of an existing single storey dwelling house and single storey former restaurant building, the decommissioning and removal of the existing septic tank & associated pipework, and for (b) the construction of a new 2 storey dwelling house, installation of a wastewater treatment unit (WWTU) and associated soil polishing filter, alterations to the existing entrance from the public road, R571, and the road side boundary to facilitate improved sightlines along with all associated landscaping and ancillary works at Killaha East, Kenmare, Co. Kerry.

1.2 Legislative Context

All Irish bats are protected under the Wildlife Acts. Also, the EU Habitats Directive, and Irish implementing legislation, seeks to protect rare species, including bats, and their habitats, and requires that appropriate monitoring of populations be undertaken. Moreover, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982) exists to conserve all bat species and their habitats. The Convention on the Conservation of Migratory Species of Wild

Animals (Bonn Convention 1979, enacted 1983) protects migrant bat species across all European boundaries. Ireland has ratified both these conventions.

All bats are listed in Annex IV to the Habitats Directive (92/43/EC) and the Lesser Horseshoe bat is further listed under Annex II to the same Directive. Article 12 of the Directive requires Member States to establish a system of strict protection for animal species listed in Annex IV. Article 16 provides for derogation from the protection under Article 12 in certain circumstances. Articles 12 and 16 are transposed into Irish law by Regulations 51 and 54, respectively, of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended).

Destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation licence has to be obtained from the National Parks and Wildlife Service (NPWS) before works can commence. Any works interfering with bats and especially their roosts, may only be carried out under a Regulation 54 licence issued by the NPWS. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in NPWS Guidance Series 2 – "*Strict Protection of Animal Species: Guidance for Public authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public authority*" (Mullen et al., 2021).

1.3 Objectives

The objectives of the bat survey were to assess:

- The potential suitability of the existing buildings at the site for roosting bats;
- Whether or not bats are roosting within the buildings and how many bats these roosts support (i.e. size and importance);
- Make an assessment of the potential impacts of the proposed works on bats; and
- To provide appropriate mitigation measures to remove or reduce impacts.

1.4 Surveyor Information

The survey was undertaken by Karen Banks, MCIEEM.

Karen is an ecologist with 19 years' experience in the field of ecological assessment. She holds a BSc in Environment and Development from Durham University and is a full member of the Chartered Institute of Ecology and Environmental Management. Karen is an experienced and skilled bat surveyor, first gaining a scientific licence to disturb bats from Natural England, UK in 2008. Karen is trained in bat handling and capture methods and currently holds a bat disturbance licence granted by the NPWS. Karen has undertaken bat survey and assessment for numerous projects, including bridge repair and replacement works, domestic dwelling repair and demolition works, wind farm developments and large-scale infrastructure projects such as flood relief schemes, road developments and pipeline schemes. Karen has also represented Cork County Council as an expert witness for bats at an Oral Hearing.

2 Methodology

2.1 Desk Study

A pre-survey data search was conducted in order to collate existing information from the footprint of the site and its surrounding area on bat activity, roosts and landscape features that may be used by bats. The data search comprised the following information sources:

- Collation of known bat records from within a 4km radius[1] of the proposed site from the National Bat Database held by the National Biodiversity Data Centre (www.biodiversityireland.ie); and
- Review of Ordnance Survey mapping and aerial photography of the site and its environs.

2.2 Consultation

Mr Gerald McEnery, National Parks and Wildlife Service visited the site with Ms Karen Banks, Liz Keeman and Aidan Crowley on 29th July 2025. Mr McEnery inspected the old restaurant for evidence of bats during the site visit.

2.3 Field Survey

This bat survey and assessment was undertaken in accordance with the following guidelines:

- Andrews, H. (2018) Bat Roosts in Trees. A guide to identification and assessment for tree-care and ecology professionals. Pelagic Publishing.
- Bat Conservation Ireland (2010) G*uidance notes for Planners, Engineers, Architects, and Developers*;
- Collins, J. (ed.) (2023) *Bat Surveys for Professional ecologists: Good Practice Guidelines (4th ed.)*. The Bat Conservation Trust, London; and
- 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.

2.4 Surveyor Information

The survey was undertaken by Karen Banks, MCIEEM.

Karen is an ecologist with 19 years' experience in the field of ecological assessment. She holds a BSc in Environment and Development from Durham University and is a full member of the Chartered Institute of Ecology and Environmental Management. Karen is an experienced and skilled bat surveyor, first gaining a scientific licence to disturb bats from Natural England, UK in 2008. Karen is trained in bat handling and capture methods and currently holds a bat disturbance licence granted by the NPWS. Karen has undertaken bat survey and assessment for numerous projects, including bridge repair and replacement works, domestic dwelling repair and demolition works, wind farm developments and large-scale infrastructure projects such as flood relief schemes, road developments and pipeline schemes. Karen has also represented Cork County Council as an expert witness for bats at an Oral Hearing.

2.5 Bat Roost Inspection Survey

On 6th February 2025 and 21st June 2025 the existing buildings at the site was surveyed for potential roost sites and signs of bats. The survey utilised a high-powered torch, close focussing binoculars and

[1] A 4km radius search distance was selected to encompass records of bat roosts within Core Sustenance Zones (CSZ) of the study area for Irish species of bat. A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the conservation status of the colony using the roost (Collins, 2016).

an endoscope (Explorer Premium 8803 with 9mm camera) where required. The external inspection involved looking for bat droppings on the ground, stuck to walls, windowsills or in crevices in the stonework and recording suitable entry and exit points.

The internal inspection involved looking for features that may be suitable for roosting bats, such as joints and crevices in wood, holes or crevices between stonework in the walls and searching for bat droppings, urine stains and feeding signs on the floor.

The following criteria were used to determine the potential suitability of the site for bats (Table 2-1)[2].

Table 2-1: Criteria for Assessing the Potential Suitability of the Site for Bats

Suitability	Description Roosting habitats in structures	Potential flight paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/ suitable shelter at all ground/ underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/ protection for flight-lines, or generate/ shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation- the categorisation described in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight paths such as river valleys, streams, hedgerows, lines of trees and woodland edge.

[2] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London

	habitat. These structures have the potential to support high conservation status roosts e.g. maternity or classic cool/ stable hibernation site.	High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.6 Bat Roost Emergence Survey

Dusk surveys of the dwelling and restaurant were undertaken on 10th June 2025 and 21st June 2025 in order to watch and listen for bats exiting bat roosts to determine the presence or absence of bats at the time of survey. The dusk emergence surveys commenced approximately 15 minutes before sunset and ended approximately 90 minutes after sunset. The surveys were undertaken in suitable weather conditions (avoiding periods of very heavy rain, strong winds (> Beaufort Force 5), mists and dusk temperatures below (10°C)). Two people surveyed the structures (Karen Banks and Cathál MacPartholan), one surveyor was located outside an open window to the restaurant and one surveyor was located to the north of both buildings.

Anabat Walkabout detectors were utilised for the survey, which record bat echolocation calls directly on to an internal SD memory card. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded. Data was then downloaded and all recordings were analysed by the Anabat Insight software analysis programme version 2.1.4-0.

2.7 Monitoring

In order to supplement the information gathered from the emergence survey, a passive monitoring system of bat detection was also deployed for this survey (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 later analysis). Passive monitoring was completed using 1 no. Anabat Express bat monitor, which was positioned inside the restaurant. The monitor was set to record from approximately 30 minutes before sunset and was left recording between 30th April and 16th May 2025.

3 Results

3.1 Existing Bat Data

The review of existing records of bat species in the environs of the site indicates that eight of the ten known Irish species of bat have been recorded within a 4km radius of the study area (last checked July 2025). These bats include pipistrelle species (*Pipistrellus pipistrellus sensu lato*), common pipistrelle (*P. pipistrellus*) soprano pipistrelle (*P. pygmaeus*) and Nathusius' pipistrelle (*P. nathusii*), Leisler's bat (*Nyctalus leisleri*), brown long-eared bat (*Plecotus auritus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*M. nattereri*) and lesser horseshoe bat (*Rhinolophus hipposideros*) as shown in Table 3-1 below. Of these species, brown long-eared and lesser horseshoe bat have been recorded roosting within 4km of the proposed site.

Table 3-1: NBDC bat records from within a 4km radius of the proposed development

Common Name	Scientific Name	Present (Y/N)	Known Roost (Y/N)	Date of Last Record
Pipistrelle sp.	*Pipistrellus pipistrellus sensu lato*	Y	N	25/08/2017
Common Pipistrelle	*Pipistrellus pipistrellus*	Y	N	14/09/2019
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Y	N	14/09/2019
Nathusius's Pipistrelle	*Pipistrellus nathusii*	Y	N	27/07/2006
Leisler's Bat	*Nyctalus leisleri*	Y	N	14/09/2019
Brown Long-eared Bat	*Plecotus auratus*	Y	Y	26/07/2011
Daubenton's Bat	*Myotis daubentoniid*	Y	N	14/09/2019
Whiskered Bat	*Myotis mystacinus*	N	N/A	N/A
Natterer's Bat	*Myotis nattereri*	Y	N	26/07/2011
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Y	Y	28/01/2015
Brandt's Bat	*Myotis brandtii*	N	N/A	N/A

The bat landscape association model (Lundy *et al,* 2011) suggests that the site is part of a landscape that is of moderate to high suitability for all Irish bat species, with the exception of Nathusius' pipistrelle (*Pipistrellus nathusii*), for which the site and wider area are of low suitability.

Lesser horseshoe bat is a qualifying interest species for Kenmare River SAC, which is located c.20m to the north of the proposed site at nearest.

3.2 Habitat Description

The buildings at the proposed site comprise an occupied dwelling house and a disused restaurant, as described below.

Dwelling

Single- storey dwelling with rendered walls and a tile roof with a single chimney on the western gable and wooden soffits to the gable ends (Plate 3-1).

Plate 3-1: Dwelling at Killaha East

Old Restaurant

The old restaurant is a single storey building with a double A-frame roof covered with roof felt. The walls of the easternmost room are constructed of timber and the westernmost room is constructed of block with rendered walls (Plate 3-2).

Plate 3-2: Old restaurant at Killaha East

The grounds around the dwelling and old restaurant comprise a lawn with mature trees including Oak, Beech, Scot's Pine, Birch, Cypress and Beech with Holly and Hazel (Plate 3-3).

Plate 3-3: View of the buildings and mature trees from the site entrance

3.3 Bat Roost Inspection Survey

Dwelling

The dwelling house is in good condition, with potential entry points for bats limited to slightly raised roof tiles and small gaps at the edge of wooden soffits. Internally, the roof is lined by wooden boards and there are no access points for bats to the roof space.

No evidence of bats was recorded within the dwelling house.

Restaurant

The roof felt is raised at the edges and there is an open window on the western elevation of the building. Heavy Ivy growth is present and is growing into the building in places.

A small pile of old droppings was present in the old bar of the restaurant; most had disintegrated but some were consistent in appearance with lesser horseshoe bat droppings (Plate 3-5). The window to the old bar is open and one of the ceiling boards is broken, which would allow access to the roof space.

Plate 3-4: Droppings present in the old bar of the restaurant

3.4 Roost Emergence Survey

No bats were recorded emerging from the restaurant or dwelling house during the dusk surveys conducted on 10th June and 21st June 2025.

While no bats were recorded emerging from the buildings, four bat species were recorded commuting/ foraging at the proposed site. A low number of lesser horseshoe bat (2 no.) were recorded foraging at woodland edge habitat to the west and east of the site during the survey conducted on 10th June 2025. Common pipistrelle and soprano pipistrelle were recorded foraging at woodland edge habitat around the edge of the lawn and a low number of Leisler's bat were recorded commuting overhead.

3.5 Monitoring

The passive monitor left within the building between 30th April 2025 and 16th May 2025 recorded lesser horseshoe bat activity between 2nd May and 16th May, with activity recorded at around 2am on 2nd May; close to sunset and sunrise between 3rd May and 16th May; and low levels of activity occasionally in the middle of the night (on three of the nights of the recording). No other species were recorded on the passive monitor.

3.6 Significance of the Structure for Bats

The landscape surrounding the proposed site comprises fields of agricultural grassland bound by hedgerows and treelines, scrub, forestry and broadleaved woodland; Kenmare River is to the north of the proposed site. Potential foraging and commuting habitat is present along hedgerows, treelines, scrub and woodland edges. The proposed site and surrounding landscape are of high suitability for foraging and commuting bats.

The results of the bat roost inspection survey conducted in February 2025 indicated that there was no evidence of bat use within the dwelling, however the restaurant is used as a roost by lesser horseshoe

bat. A moderate number of old droppings and a small number of fresh droppings were present in the old bar, indicating likely opportunistic use of the old restaurant by small numbers of bats during the winter and greater use of the building at other times of the year. No live bats were observed at the time of the roost inspection survey, however there was no access to inspect the roof space.

The results of the passive monitoring undertaken within the restaurant in spring (end of April to mid May) 2025 indicate that lesser horseshoe bat was recorded on 15 of the 17 nights of monitoring, predominantly at dusk and dawn, with occasional activity in the middle of the night. Activity levels were very variable over the monitoring period and ranged from 2 calls recorded per night of recording up to a peak of 75 calls. No bats were recorded emerging from the restaurant during surveys conducted on 10th and 21st June 2025.

The old restaurant has been recorded as a roost of rarer species, but is not a maternity site. In accordance with Figure 20 (p. 46) of the *Bat Mitigation Guidelines for Ireland*, the roost is of low to moderate conservation significance.

The bat species recorded at the site are of Least Concern (Marnell et al., 2019). The conservation status of lesser horseshoe bat is categorised as being of Inadequate conservation status (NPWS, 2019).

4 Evaluation of Survey Results

A review of existing bat records from within a 4km radius of the proposed site indicates that eight of the ten known Irish species of bat have been recorded within a 4km radius of the site: pipistrelle species (*Pipistrellus pipistrellus sensu lato*), common pipistrelle (*P. pipistrellus*) soprano pipistrelle (*P. pygmaeus*) and Nathusius' pipistrelle (*P. nathusii*), Leisler's bat (*Nyctalus leisleri*), brown long-eared bat (*Plecotus auritus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*M. nattereri*) and lesser horseshoe bat (*Rhinolophus hipposideros*). Of these species, brown long-eared and lesser horseshoe bat have been recorded roosting within 4km of the proposed site.

Habitats within the proposed site that are of potential use by foraging and commuting bats include woodland and woodland edges, which provide connectivity between the site and other foraging areas in the wider landscape. Overall, the site is considered to be of high suitability for foraging and commuting bats due to the presence of connectivity to other suitable habitats in the wider landscape. A lesser horseshoe bat roost is present within the old restaurant; survey evidence suggests that the roost is primarily used by small numbers of bats in spring (estimated c.10 individuals) and does not function as a maternity roost.

The proposed site is located adjacent to an SAC designated for the presence of the Annex II and Annex IV species lesser horseshoe bat, namely Kenmare River SAC. In 2016, the Bat Conservation Trust (BCT) carried out a review of literature pertaining to mean and maximum bat foraging distances[3]. In their review, a Core Sustenance Zone (CSZ) refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost. The weighted average maximum foraging distance for lesser horseshoe bats was 2.02km. However, as noted in the National Parks and Wildlife Service (NPWS) document *Conservation objectives supporting document – lesser horseshoe bat* (*Rhinolophus hipposideros*)[4], some researchers have found that lesser horseshoe bats normally forage in woodlands/scrub within 2.5km of their roosts, therefore, as specified for the purpose of current site specific conservation objective (SSCO) targets for this species, a 2.5km zone is considered an appropriate distance to foraging areas for each roost. The CSZ for the summer roost for Kenmare River SAC QI species lesser horseshoe bat at Foley's cottage Killaha overlaps with the proposed site (see Figure 4-1).

[3] Collins, J. (ed.) (2016). *Bat Surveys for Professional ecologists: Good Practice Guidelines* (3rd ed.). The Bat Conservation Trust, London

[4] NPWS (2018) Conservation objectives supporting document – lesser horseshoe bat (*Rhinolophus hipposideros*) Version 1. Conservation Objectives Supporting Document Series. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland.

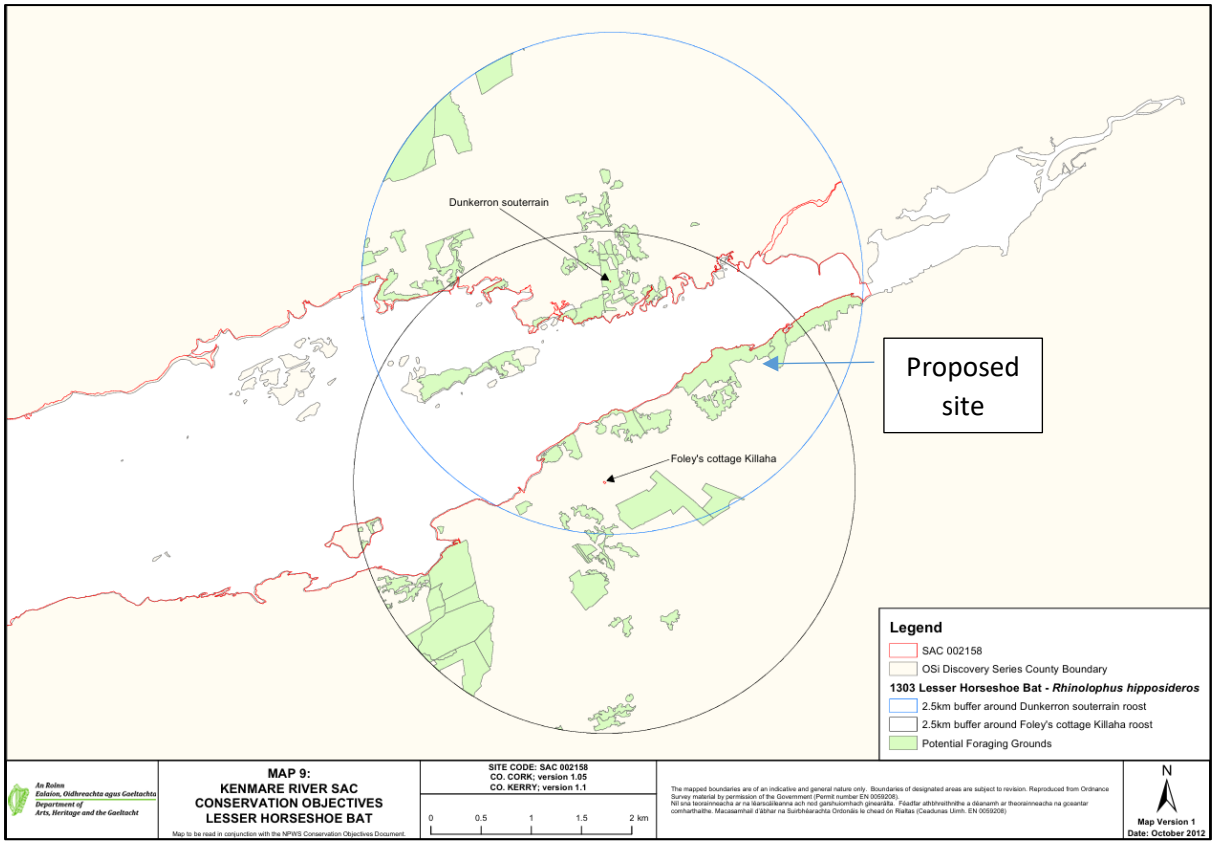


Figure 4-1: Location of proposed site in relation to the potential foraging area of SAC populations of lesser horseshoe bat

The status of Irish bat species (Marnell *et al.*, 2019) is summarised in Table 4-1. The bat species recorded at the site are all of Least Concern.

The conservation status of lesser horseshoe bat is Inadequate (NPWS, 2019). The latest population estimate of lesser horseshoe bat nationally is 14,975 in summer 2023 (Roche, N, 2024).

Table 4-1: Status of Irish Bat Fauna (Marnell et al., 2019).

Species: Common Name	Irish Status	European Status	Global Status
Resident Bat Species			
Daubenton's bat (*Myotis daubentonii*)	Least Concern	Least Concern	Least Concern
Whiskered bat (*Myotis mystacinus*)	Least Concern	Least Concern	Least Concern
Natterer's bat (*Myotis nattereri*)	Least Concern	Least Concern	Least Concern
Leisler's bat (*Nyctalus leisleri*)	Least Concern	Least Concern	Least Concern
Nathusius' pipistrelle (*Pipistrellus nathusii*)	Least Concern	Least Concern	Least Concern
Common pipistrelle (*Pipistrellus pipistrellus*)	Least Concern	Least Concern	Least Concern
Soprano pipistrelle (*Pipistrellus pygmaeus*)	Least Concern	Least Concern	Least Concern
Brown long-eared bat (*Plecotus auritus*)	Least Concern	Least Concern	Least Concern
Lesser horseshoe bat (*Rhinolophus*	Least Concern	Near threatened	Least Concern

Species: Common Name	Irish Status	European Status	Global Status
***hipposideros*)**			
Possible Vagrants			
Brandt's bat (*Myotis brandtii*)	Not Assessed	Least Concern	Least Concern
Greater horseshoe bat (*Rhinolophus ferrumequinum*)	Not Assessed	Near threatened	Least Concern

5 Impact Assessment

It is proposed to demolish the existing dwelling and old restaurant for the provision of a new dwelling house. No bats were recorded within the dwelling. The old restaurant is a spring roost for small numbers of lesser horseshoe bat and this species may also use this building in small numbers opportunistically as a roost at other times of the year. There is potential for disturbance to a minor lesser horseshoe bat roost of low to medium conservation importance should the proposed demolition works be undertaken while bats are present.

6 Mitigation

6.1 Derogation Tests

Test 1: The proposed development is required to fulfil a long-term housing need for a family and, as such, is of public interest of a social and economic nature. The provision of a family home supports social and economic development and, as such, outweighs the conservation interest of the bat species, particularly as the roost is minor and of low to moderate conservation importance (in accordance with Marnell et al, 2022).

Test 2: Alternative solutions considered included not demolishing the old restaurant (i.e. 'do-nothing). However, that option is not feasible as the restaurant is falling into disrepair and is subject to ingress of water and damage from vegetation growth, if nothing is done it will fall further into disrepair. Its removal is required to facilitate construction of the new dwelling house. Repair and retention of the old restaurant is not feasible due to its state of disrepair (as noted above). The building has not been used for several years and is becoming unsafe and beyond a reasonably proportionate cost to repair. Further, as also noted previously, removal of the old restaurant is required for the provision of a family dwelling house.

Test 3: The national population of lesser horseshoe bat is estimated at 14,975 in summer 2023. The number of lesser horseshoe bat roosting in the old restaurant is estimated to be c.10 individuals predominantly during the spring period, the site does not support a maternity roost. In the absence of any mitigation, the demolition of the restaurant may potentially result in the mortality of a small number of non-breeding lesser horseshoe bat, if timed inappropriately. This would result in an adverse effect on the conservation status of the local population of lesser horseshoe bat but would not be significant on a national scale. With the implementation of the mitigation measures outlined in the supporting report, using established guidelines (e.g. Marnell, 2022 and Schofield, 2008) the proposed development and actions outlined within the supporting report will not be detrimental to the maintenance of populations of bat species at favourable conservation status in their natural range (as required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations, either locally or nationally. Indeed, the provision of a dedicated roost following established guidelines may potentially result in a positive effect on the population of lesser horseshoe bat locally.

Examples of purpose built summer roosts for Rhinolophus species that have been successfully used can be found in the Eurobats Report available at: Doc.StC14-AC23.31-Report_Purpose-built_Roosts.pdf.

6.2 Mitigation Measures

Lesser horseshoe bat roost within the old restaurant, therefore, safeguards are recommended to ensure the safety of these animals during works.

Application for a derogation licence

NB: Work on a known bat roost is a notifiable action under current legislation and a derogation licence has to be obtained from the National Parks and Wildlife Service before works on the roost can commence. Such a licence is required for the proposed works to the old restaurant at the proposed site and no demolition works should be undertaken to the old restaurant before the licence is granted by the NPWS.

In accordance with Marnell *et al* (2022), the old restaurant at Killaha East supports a bat roost considered to be of low to moderate conservation significance. As stated in Figure 20, page 46, this necessitates:

"Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements"

The old restaurant supports a minor lesser horseshoe bat roost, therefore, the provision of an alternative roost for this species, a rarer Annex II species, will be the priority. However, features will be incorporated for use by other species.

Measure 1: provision of a compensatory bat roost

An alternative bat roost is required to be provided. It is recommended that this is undertaken as soon as possible in order to have this roost in place prior to works on the old restaurant.

The Marnell *et al* (2022) and Schofield (2008) publications have been consulted to design an alternative bat roosting site for lesser horseshoe bat, with provisions for brown long-eared bat and crevice dwellers such as pipistrelle. Design principles followed include:

- An existing outhouse adjacent to the old restaurant (but not attached to the restaurant) shall be re-purposed to provide a compensatory roost. As such, the compensatory roost will be located as close to the existing roost as possible.
- The compensatory roost shall be located adjacent to an existing treeline. This will provide some cover and a flight line from the roost. However, there is a gap between the building and woodland located to the west, therefore additional tree planting will ensure an unbroken link between the roost and woodland.
- The design takes into consideration the requirements of the species concerned:
    - The design of the roost is informed by Schofield (2008) and, in addition to lesser horseshoe bat, includes provisions for pipistrelle and brown long-eared bat, based on their roosting preferences.
    - The flat roof will be replaced by a pitched roof to provide sufficient flying space and roosting space.
    - Suitable thermal regimes shall be provided by the inclusion of a hot box and a variety of roosting opportunities will be provided.

The roost plans are as follows:

- The existing building measures 2.3m x 1.4m internal floor space, with an internal height of 2.3m from floor to the top of the wall.
- The building is constructed of block.
- Existing windows shall be boarded up leaving a gap at the top of one window to provide an opening measuring 20cm high as an entrance for the bats.
- The existing flat roof will be replaced with an A-frame roof with natural slate and 1F bituminous felt on timber joists. There will be a loft space with an open trap door measuring 50cm x 50cm to allow bats to fly up into the roof space. The roof will be at a pitch of 35° and will provide an internal height from floor to roof apex of 3.4m.
- The existing door on the southern gable end shall be kept locked.

Internal design:

- The floor of the roof space shall be constructed from timber joists and will be sheeted with marine ply leaving the timber joists exposed underneath the ply sheets for roosting space. A 50cm x 50cm trap door shall be provided in the middle of the roof space.
- A partition box shall be provided around the entrance point to reduce light entering the roof space. The box shall be 75cm square and shall be open at the bottom to allow bats to enter

the box and fly down. A hot box shall be constructed in the roof space to provide additional roosting space.

- Additional roosting space shall be provided by 2 woodstone/woodcrete[5] bat boxes on the wall in the ground floor (as high as possible).

The existing building is illustrated in Plate 5-1.

Landscaping:

- The proposed development includes for the planting of the existing western boundary with native species. This planting shall be extended to the western gable of the compensatory roost building to provide a link between the roost entrance and existing trees and to connect with other suitable foraging habitat in the wider landscape.

A bat specialist shall be consulted to ensure that works are located and completed correctly.

Plate 6-1: Existing outhouse to be converted into a compensatory roost

Measure 2: timing of works

In accordance with the *Bat Mitigation Guidelines for Ireland*, where the structure is used throughout the year, the optimum time for works of all types is likely to lie outside the main breeding season and the main hibernation season to avoid times when disturbance may impact on survival or bats may not be sufficiently active to get out of the way. Spring and autumn generally provide the optimum period for such operations. However, it is also noted on p51 of *Bat Mitigation Guidelines for Ireland* that unless significant numbers of bats are known to be hibernating in a building, there is no advantage in requesting a deferment of scheduled works. Survey results indicate that the dwelling does not support a maternity roost or a hibernation roost.

Refurbishment and extension works shall only proceed under licence.

Measure 3: demolition of the old restaurant

Passive monitoring will be undertaken to determine that no bats are present prior to the proposed works.

[5] For example: Beaumaris Bat Box with heat-absorbing WoodStone® - CJ Wildlife

Prior to commencement of works the bat specialist will brief the contractor on the possible presence of bats on the site, the subsequent need to take appropriate care and attention whilst carrying out the works and the steps to take should bats be discovered at the site at any time (i.e. stop works and inform the bat specialist). Active bats will usually keep out of the way of any operations, but torpid bats may need to be gently temporarily placed in a box until dusk and released on site.

The roof of the old restaurant will be stripped by hand under the supervision of a suitably qualified bat ecologist until the roof is no longer suitable to support roosting bats. This will include removal of the roof felt to render the roof space unsuitable for bats, as guided by the bat ecologist.

Once the structure is deemed to be free of bats and no longer suitable as a roosting site, the proposed works may proceed.

Measure 4: lighting

Lighting within the proposed development site shall be installed with sensitivity for local wildlife while still providing the necessary lighting for human usage. This is particularly important for the compensatory bat roost and bat foraging/commuting habitat at the site boundary.

The following general principals will be followed in relation to the overall lighting plan for the proposed development site:

- Lighting design will be flexible and be able to fully take into account the presence of protected species. Therefore, appropriate lighting shall be used within the proposed development with more sensitive lighting regimes deployed in wildlife sensitive areas.
- Dark buffer zones will be used to separate habitats or features from lighting by forming a dark perimeter around them. This shall be used for the compensatory bat roost and retained and planted vegetation at the site boundary (foraging/commuting habitat).
- Buffer zones will be used to protect dark buffer zones and rely on ensuring light levels (levels of illuminance measured in lux) within a certain distance of a feature do not exceed certain defined limits. The buffer zone can be further subdivided into zones of increasing illuminance limit radiating away from the feature or habitat that requires to be protected.

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 will be considered when choosing luminaires. This is taken from the most recent BCT Lighting Guidelines (BCT, 2023).

- All luminaires used will lack UV elements to reduce impact.
- LED luminaires will be used due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins) is recommended to reduce the blue light component.
- Light sources shall feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01.

- Luminaires shall always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting shall be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

7 References

Altringham, J. (2003) British Bats The New Naturalist Series 93. Harper Collins.

Aughney, T., Kelleher, C., & Mullen, D. (2008): Bat Survey Guidelines, Traditional Farm Buildings Scheme. Heritage Council, Kilkenny.

Bat Conservation Ireland, (2010). Guidance notes for Planners, Engineers, Architects, and Developers.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Coastal, Freshwater and Marine. The Institute for Ecology and Environmental Management.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The 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.

Marnell, F. & P. Presetnik (2010): Protection of overground roosts for bats (particularly roosts in buildings of cultural heritage importance). EUROBATS Publication Series No. 4 (English version). UNEP / EUROBATS Secretariat, Bonn, Germany, 57 pp.

National Roads Authority (2006): Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes. National Roads Authority, Dublin.

National Roads Authority (2006): Guidelines for the Treatments of Bats Prior to the Construction of National Road Schemes. National Roads Authority, Dublin.

Roche et al. (2014) Irish Bats in the 21st Century. Bat Conservation Ireland.

Russ (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing.

Schofield, H (2008) The Lesser Horseshoe Bat Conservation Handbook. The Vincent Wildlife Trust.

A: Description of Irish Bat Species

Ireland has ten known bat species from two distinct families. Each is briefly described below. For a more comprehensive overview see Roche *et al* (2014). The conservation status of each species is derived from NPWS (2019).

Vespertilionidae:

Common pipistrelle (*Pipistrellus pipistrellus*)

This species was only recently separated from its sibling, the soprano or brown pipistrelle *P. pygmaeus*, which is detailed below (Barratt et al, 1997). The common pipistrelle's echolocation calls peak at 45 kHz. The species forages along linear landscape features such as hedgerows and treelines as well as within woodland. The conservation status of this species is Favourable.

Soprano pipistrelle (*Pipistrellus pygmaeus*)

The soprano pipistrelle's echolocation calls peak at 55 kHz, which distinguishes it readily from the common pipistrelle on detector. The pipistrelles are the smallest and most often seen of our bats, flying at head height and taking small prey such as midges and small moths. Summer roost sites are usually in buildings but tree holes and heavy ivy are also used. Roost numbers can exceed 1,500 animals in mid-summer. The conservation status of this species is Favourable.

Nathusius' pipistrelle (*Pipistrellus nathusii*)

Nathusius' pipistrelle is a recent addition to the Irish fauna and has mainly been recorded from the north-east of the island in Counties Antrim and Down (Richardson, 2000) and also in Fermanagh, Longford and Cavan. It has also been recorded in Counties Cork and Kerry (Kelleher, 2005). However, the known resident population is enhanced in the autumn months by an influx of animals from Scandinavian countries. The conservation status of this species is Favourable.

Leisler's bat (*Nyctalus leisleri*)

This species is Ireland's largest bat, with a wingspan of up to 320mm; it is also the third most common bat, preferring to roost in buildings, although it is sometimes found in trees and bat boxes. It is the earliest bat to emerge in the evening, flying fast and high with occasional steep dives to ground level, feeding on moths, caddis-flies and beetles. The echolocation calls are sometimes audible to the human ear being around 15 kHz at their lowest. The audible chatter from their roost on hot summer days is sometimes an aid to location. The conservation status of this species is Favourable.

Brown long-eared bat (*Plecotus auritus*)

This species of bat is a 'gleaner', hunting amongst the foliage of trees and shrubs, and hovering briefly to pick a moth or spider off a leaf, which it then takes to a sheltered perch to consume. They often land on the ground to capture their prey. Using its nose to emit its echolocation, the long-eared bat 'whispers' its calls so that the insects, upon which it preys, cannot hear its approach (and hence, it needs oversize ears to hear the returning echoes). As this is a whispering species, it is extremely difficult to monitor in the field as it is seldom heard on a bat detector. Furthermore, keeping within the foliage, as it does, it is easily overlooked. It prefers to roost in old buildings. The conservation status of this species is Favourable.

Natterer's bat (*Myotis nattereri*)

This species has a slow to medium flight, usually over trees but sometimes over water. It usually follows hedges and treelines to its feeding sites, consuming flies, moths, caddis-flies and spiders. Known roosts are usually in old stone buildings but they have been found in trees and bat boxes. The Natterer's bat is one of our least studied species and further work is required to establish its status in Ireland. The conservation status of this species is Favourable.

Daubenton's bat (*Myotis daubentonii*)

This bat species prefers feeding close to the surface of smooth water, either over rivers, canals, ponds, lakes or reservoirs but it can also be found foraging in woodlands. Flying at 15 kilometres per hour, it gaffs insects with its over-sized feet as they emerge from the surface of the water - feeding on caddis flies, moths, mosquitoes, midges etc. It is often found roosting beneath bridges or in tunnels and also makes use of hollows in trees. The conservation status of this species is Favourable.

Whiskered bat (*Myotis mystacinus*)

This species, although widely distributed, has been rarely recorded in Ireland. It is often found in woodland, frequently near water. Flying high, near the canopy, it maintains a steady beat and sometimes glides as it hunts. It also gleans spiders from the foliage of trees. Whiskered bats prefer to roost in buildings, under slates, lead flashing or exposed beneath the ridge beam within attics. However, they also use cracks and holes in trees and sometimes bat boxes. The conservation status of this species is Favourable.

Brandt's bat (*Myotis brandtii*)

According to NPWS (2013), whiskered and Brandt's bats are cryptic species and can only be told apart using DNA techniques. Brand't bat has been confirmed only once from Ireland; a single specimen found in 2003 in Wicklow (Mullen, 2006). Following this discovery, an intensive re-survey, involving DNA testing, was undertaken of all known whiskered bat roosts in Ireland, by the Centre for Irish Bat Research. Woodland mist-netting was also conducted for the species. Despite the extensive survey-work, no further Brandt's bats were identified. The most recent Red Data List for Irish Mammals (Marnell *et al*. 2009) lists Brandt's bat as data deficient. There is no evidence of any roosts for this species in the country and at present the single record for the species is considered an anomaly. Boston et al (2010) concluded that "M. brandtii …. cannot currently be considered a resident species. This species is now considered a vagrant to the country and consequently, a detailed assessment has not been carried out.

<u>Rhinolophidae:</u>

Lesser horseshoe bat (*Rhinolophus hipposideros*)

This species is the only representative of the Rhinolophidae or horseshoe bat family in Ireland. It differs from our other species in both habits and looks, having a unique nose leaf with which it projects its echolocation calls. It is also quite small and, at rest, wraps its wings around its body. Lesser horseshoe bats feed close to the ground, gleaning their prey from branches and stones. It often carries its prey to a perch to consume, leaving the remains beneath as an indication of its presence. The echolocation call of this species is of constant frequency and, on a heterodyne bat detector, sounds like a melodious warble. The species is confined to six counties along the Atlantic seaboard: Mayo, Galway, Clare, Limerick, Kerry and Cork. The current Irish national population is estimated at 12,500 animals. This species is listed on Annex II of the EC Habitats Directive and 41 Special Areas of

Conservation have been designated in Ireland for its protection. Where it occurs, it is often found roosting within farm buildings. The conservation status of this species is Inadequate.