Bat Survey and Assessment for proposed development at the Coach House, An Gairdín Rúndach, College Road, Fermoy, Co. Cork

Prepared for Fiachra and Deborah Ó Cinnéide
c/o Chris Southgate,
Southgate Architects,
Farren House,
Midleton,
Co Cork.

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Survey and Report by
Mark Donnelly
BSc. (Hons) MICFor,
Environmental Consultant,
Granasig,
Kilbrittain,
Co.Cork.
P72 TH27
Tel: 087 6866320
Email: markgwyndon@yahoo.ie

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STATEMENT OF AUTHORITY

The report has been prepared by Mark Donnelly who has worked as an ecologist in Ireland for 17 years. His work has included bat surveys as part of Environmental Impact Statements for a wide variety of habitats. Mark has an Honours Degree in Forestry and worked in Wales for 18 years as a Countryside Manager for the National Trust. During this time he undertook bat handling for a licence with Countrywide Council for Wales in 1983 and attended other bat conservation courses with English Nature and the National Trust, specialising in tree management for bats. He is a qualified arborist and trained tree climber who has undertaken tree inspection for bats.

SUMMARY

A survey and assessment of bat species was carried out for the clients Fiachra and Deborah Ó Cinnéide, for a proposed development to an existing coach house, stables, outbuildings and courtyard, Planning Application 23/06406 An GairdínRúndach, College Road, Fermoy, Co. Cork. It is in response to a Request for Further Information from Cork County Council. Of particular concern are potential impacts arising from the proposed development on bats, if present in the buildings scheduled for redevelopment.

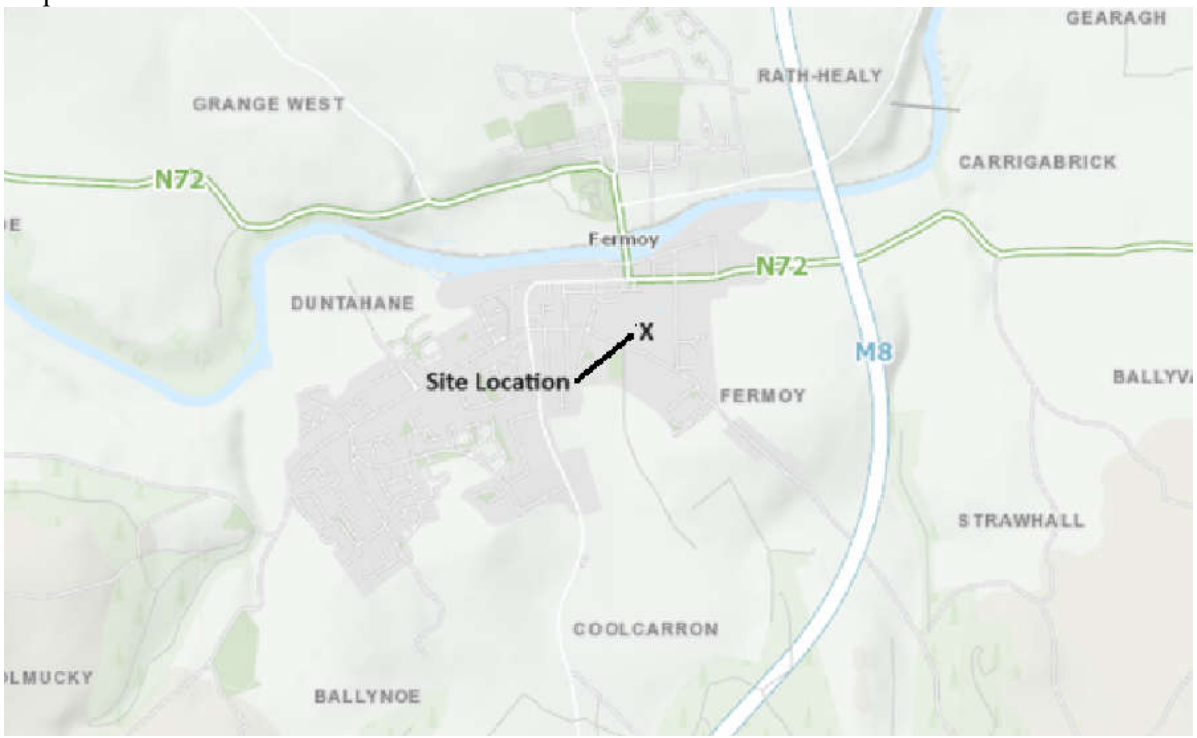
The surveyed site comprises several attached unoccupied stone-built buildings in disrepair. There was no evidence of bats found in any of the buildings. Detector and visual survey at dusk and dawn identified <13 individual Soprano Pipistrelle *Pipistrellus pygmaeus* and Common Pipistrelle *Pipistrellus pipistrellus* bats foraging in the immediate area. A small roost of several Soprano pipistrelle <5 was located in the stable block. Leislers bats *Nyctalus leisleri* were recorded commuting over the site.
The site is considered of moderate suitability as a bat roost with potential to increase roosting opportunities following mitigation measures upon completion of the proposed works.

SITE LOCATION

The area covered by the Planning Application, hereafter referred to as the 'site'is located within Fermoy town Grid Reference 52.13774, - 8.27454. Extending to approximately 0.38ha it comprises an unoccupied coach house with associated buildings, all in poor structural condition, surrounded by former gardens and trees including several mature specimens described in a separate tree report.. The site is part of a larger ownership extending to approximately 2.8 ha comprising Richmond House, formerly St. Josephs Presentation Convent with adjacent orchards, gardens, grassland and woodland. This wider area is bounded by Richmond Hill Road and housing developments to the east, Loretto Secondary School to the north and former Loretto Convent building and Fermoy town centre to the west and north. The latter is only 150 m from the site. The Blackwater River SAC (002170) passes through Fermoy and is 200m north of the site.(Site location Map 1)

The coach house buildings lie within the 10Km square hectadW89, the reference area used by the National Biodiversity Data Centre (NBDC) for species records, including bats.

Map 1: Site Location



DESCRIPTION OF SITE AND PROPOSED DEVELOPMENT

The proposed site works are described as follows in the Planning Application 'Development to existing coach house, stables, outbuildings and courtyard – a protected structure (RPS 2198) with change of use to provide single family dwelling. Construction works to include a single entrance lobby with carport, a dormer window and timber balcony to north façade and provision of a new well to the south of existing buildings, new septic tank and a percolation to north of existing buildings and associated site work. Conservation works include some minor modification to existing opes, replacement windows and doors, conserved and replaced natural slate roofs with new skylights, modification of ground line south of existing buildings to facilitate access, and internal refurbishment and modifications.'

The survey and report is concerned with all the unoccupied buildings described below (Map 2). The buildings are all stone and mortar built around a central courtyard and date from the early 19th century. They can be described as:

1) Coach house, a 2 storey building on the western side of the courtyard backing onto the former Loretto Convent. Slate roof with wooden soffits.
2) Former stable block along the northern side of the courtyard, latterly used for poultry and storage. Slate roof with wooden soffits.
3) Workshop/ coach house at the eastern elevation of the yard. Slate roof with wooden soffits.
4) Storage buildings along the southern elevation of the yard comprising an open fronted barrel-vaulted corrugated iron roof. There is also small enclosed building formerly used for apple storage.

The buildings are surrounded by vegetation on three sides and former convent buildings to the west. The vegetation to the north and south is unmanaged grassland developing areas of scrub. Trees and former garden amenity planting dominate the access approach and eastern elevation. The immediate surrounding gardens, trees and orchards are also in the clients ownership but are isolated by developments, from the surrounding countryside and Blackwater River.There is no artificial lighting on the site.

Map 2: Existing Site Layout

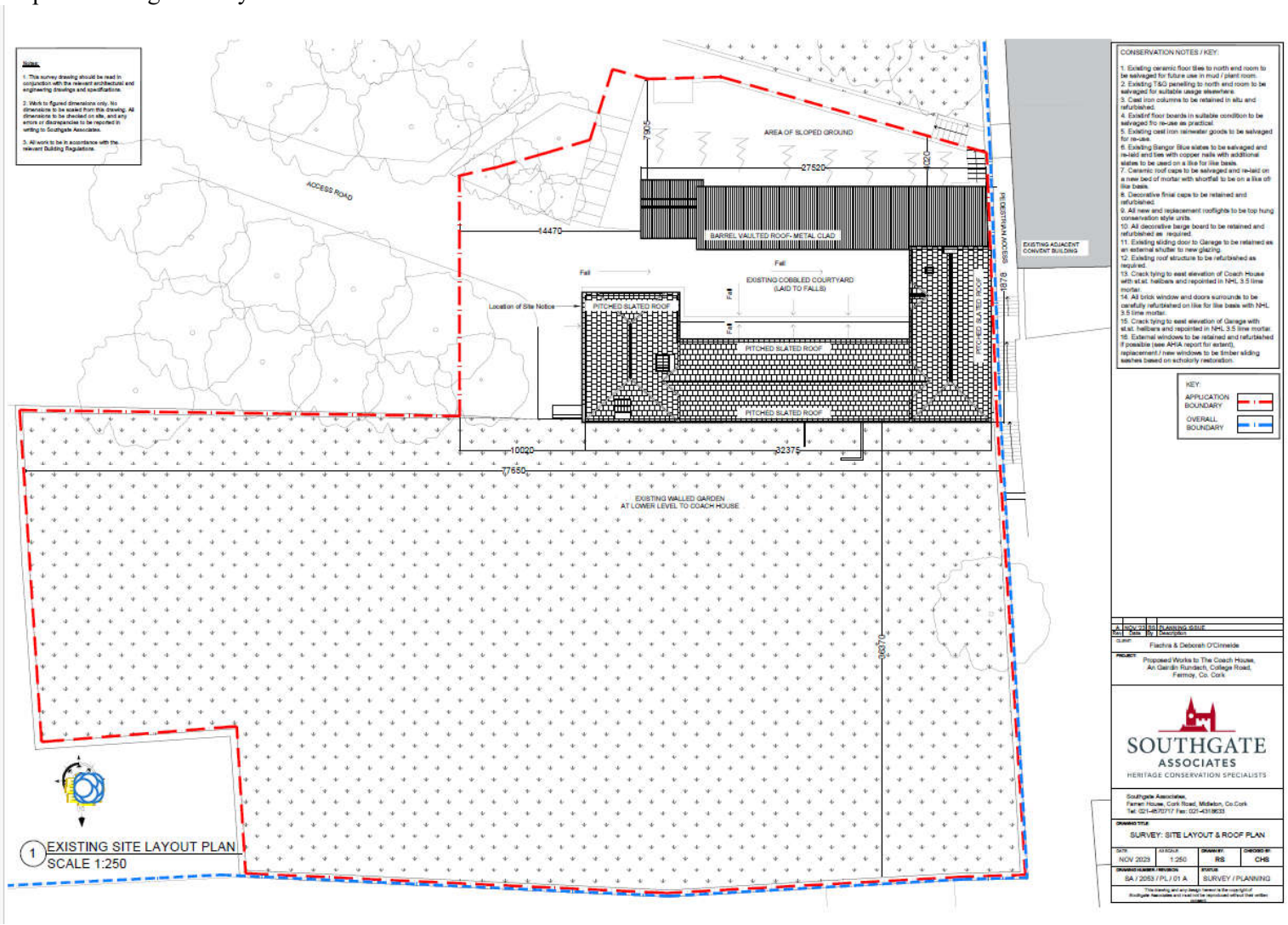


Photo 1: East elevation of the main western coach house.

Photo 2: South elevation of the northern stable block.

Photo 3: North elevation of the stable block.

Photo 4: Main stable block interior.

Photo 5: Workshop/coach house interior.

Photo 6: Storage sheds

SURVEY CONSTRAINTS

Weather conditions were good during the three site visits to observe both signs of roosting and foraging bats. Access to the lofted areas in the coach house was restricted but adequate due to safety considerations, inspections of the other buildings and exterior were comprehensive.

BACKGROUND DATA

In Ireland, nine species of bat are currently known to be resident with the residency of the tenth recorded species yet to be proven. These are classified into two Families: the Rhinolophidae (Horseshoe bats) and the Vespertilionidae (Common bats). The lesser horseshoe bat *Rhinolophus hipposideros* is the only representative of the former Family in Ireland. All the other Irish bat species are of the latter Family and these include three pipistrelle species: common *Pipistrellus pipistrellus*, soprano *P. pygmaeus* and Nathusius' *P. nathusii*, four *Myotids*: Natterers *Myotis nattereri*, Daubentons *Myotis daubentonii*, whiskered *Myotis mystacinus*, Brandt's *Myotis brandtii* and brown long-eared *Plecotus auritus* and Leisler's *Nyctalus leisleri* bats.

All bat species are protected under the Wildlife Act 1976 (as amended) which make it an offence to wilfully interfere with or destroy the breeding or resting place of all species; however, the Acts permit limited exemptions for certain kinds of development. All species of bats in Ireland are listed in Schedule 5 of the 1976 Act and are therefore subject to the provisions of Section 23 which make it an offence to:

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

In addition to domestic legislation bats are also protected under the EU Habitats Directive (92/43/EEC) with all bat species are listed in Annex IV of the Directive. Lesser Horseshoe Bat is further listed in Annex II of the EU Habitats Directive. The level of protection offered to Lesser Horseshoe Bats effectively means that areas important for this species are designated as Special Areas of Conservation. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate under the European Communities (Birds and Natural Habitats) Regulations 2011 (which transposed the EU Habitats Directive into Irish law) issued by the National Parks and Wildlife Service (NPWS). These designations are usually roost or hibernacula centered and focus on large roosting sites for the species, usually with >50 individuals in winter or >100 individuals in summer.

The review of existing bat records from NBDE within hectad W89 show that four bat species have been recorded(**Table 1)**. It should however be noted that other species are also likely to occur in this area as predicted by the Habitat Suitability Index. A study by Lundy *et al.* (2011) examined the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for

each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats.

The habitat indices for all Irish bats for the landscape within the vicinity of the proposed development site are also shown in **Table 1.**This data suggests that the proposed development site has moderate suitability for Common and Soprano Pipistrelle, Brown Long-eared Bat, Leisler's Bat, Daubentons Bat, Natterers Bat and Whiskered Bat and potential for Lesser Horseshoe Bat.

Table 1. Presence of Irish bat species within W89

Common name	Scientific name	Presence	Habitat Indices
Common Pipistrelle	*Pipistrellus pipistrellus*	Present	40
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Present	39
Brown Long-eared Bat	*Plecotus auratus*	Present	37
Leislers Bat	*Nyctalus leisleri*	Present	36
Daubentons Bat	*Myotis daubentoniid*	Absent	24
Natterers Bat	*Myotis nattereri*	Absent	32
Whiskered Bat	*Myotis mystacinus*	Absent	19
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Absent	1
Nathusius' pipistrelle	*Pipistrellus nathusii*	Absent	-

Source: NBDC 14/7/24

SURVEY

An internal and external visual inspection of the buildings was carried out on the 24th April and 13th May followed on both occasions by a further visual observation and the use of an Echo Meter Touch PRO Detector around the buildings' exterior and adjacent habitats during dusk and into darkness.

A dawn re-entry survey was carried out on the 3rd July.

Weather conditions were good for foraging bats for all surveys, above 13°C, dry and with a gentle breeze.

BUILDINGS SURVEY

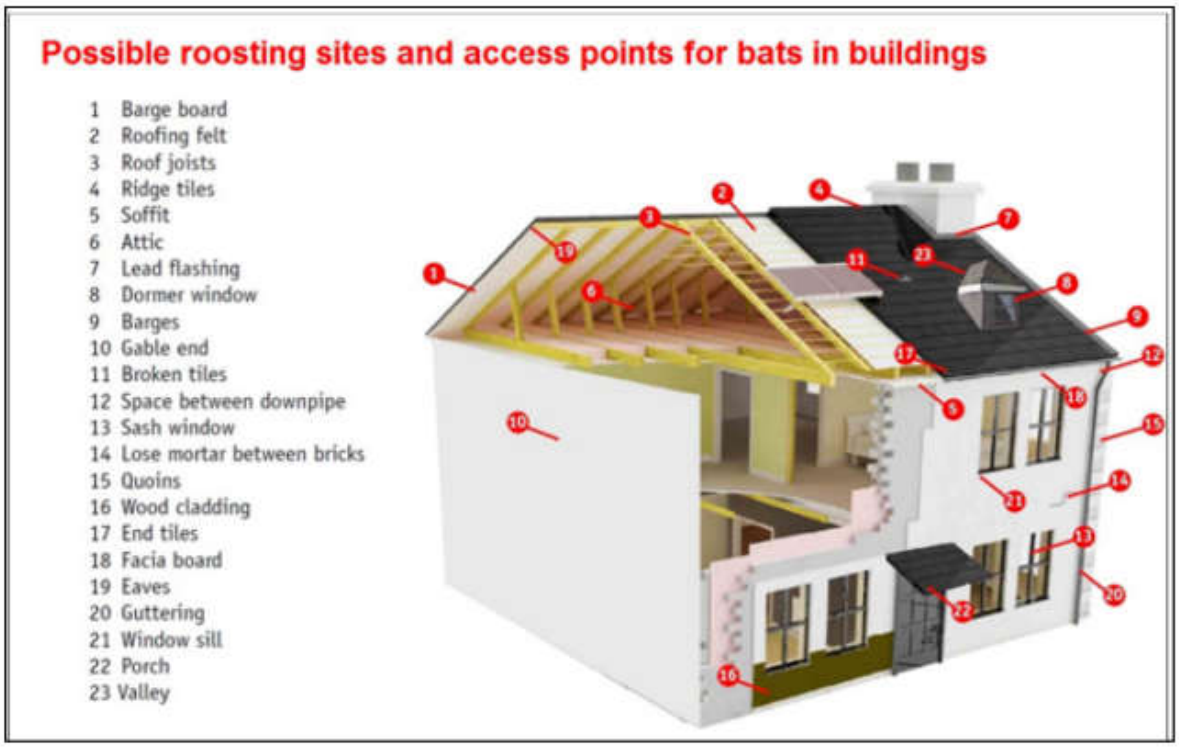
The value of buildings as potential bat roosts were classified using the criteria specified in Collins (2016) to assess the potential value of structures as bat roosts (Potential Roost Features (PRF)). Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains and dead/alive bats. Indicators that potential roost locations and access points are likely to be inactive include the presence of cobwebs and general detritus within the apertures.

Bats that use buildings can generally be divided into four categories, although there is regional variation, and some species can occupy more than one category.

- Crevice-dwelling bats (which tend to be hidden from view) include the common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Brandt's Bat and Whiskered Bat.
- Roof-void dwelling bats (that may be visible on roof timbers) are Leisler's bat and Daubentons bat.
- Bats that need flight space in certain types of roost are Natterers Bat, and Brown Long Eared Bat.
- Bats that need flight space and flying access into the roost include the Lesser Horseshoe Bat.

Bats generally require a variety of elements that need to be taken into consideration when roosting within a building, these range from temperature and humidity regime within the roost, aspect and orientation of the roost, size of roost, access points, lighting, materials and perching points. Important roosting sites for bats in buildings include crevices in stonework of old and modern structures, crevices in brick work of chimneys, attics of buildings – old and modern buildings – often behind roofing felt, under ridge tiles or in wall cavities and underground structures associated with older buildings (**Figure 1**).

Figure 1:



To maximise warmth, maternity roosts, for example, are often located on the south and west of houses or close to sources of heat such as chimneys and boilers. Most species prefer to roost in quite small spaces and are not usually found in open draughty areas like barns. Common and Soprano Pipistrelles for example are generally found in the inaccessible parts of the roof structure and around its edges and rarely enter the loft space. Where bats are seen in buildings during the winter, they tend to be alone or in small, scattered groups, hidden in crevices or under slates and away from sources of heat.
An inspection of the buildings was conducted to look for suitable roosting habitat, possible emergence points and bat presence. The presence of bats is often shown by grease staining, droppings, urine marks, corpses, feeding signs such as invertebrate prey remains and/or the presence of bat fly *Nycteribiidae* spp. pupae, although direct observations are also occasionally made. Bat droppings are often identifiable to species-level based on their size, shape and content for example Brown Long Eared and Lesser Horseshoe Bats, are very distinctive and unmistakable

SURVEY RESULTS

A roost assessment was carried out to identify, from the ground level in daylight any potential roost features (PRF) that had suitability to support roosting bats. There were numerous suitable openings /cavities in the stone-built walls and soffits suitable for crevice dwelling species and internal roof spaces both slated and corrugated iron were accessible to bats. The buildings are considered of moderate suitability as bat roosts under the guidelines set out in Bat Survey for Professional Ecologists Good Practice Guidelines (3rd edition), (Collins 2016).
No droppings or other signs of bats were found inside or outside any of the buildings. Reasons why no evidence of bats were found include:

1) Coach house adjacent to approach on the east end of the range has been used as a workshop and is contaminated be petrochemicals.
2) The slated roofs particularly the northern stable block are in poor condition and possibly too draughty for roof space dwelling bats.
3) The high northern elevation stone wall is probably too cold and therefore unsuitable for maternity roosts.
4) The metal clad corrugated iron roofs are generally unsuitable for roosting bats.
5) Fermoy town has a high proportion of alternative slate roofed stone built older buildings.
6) There is poor connectivity to surrounding countryside/foraging grounds.

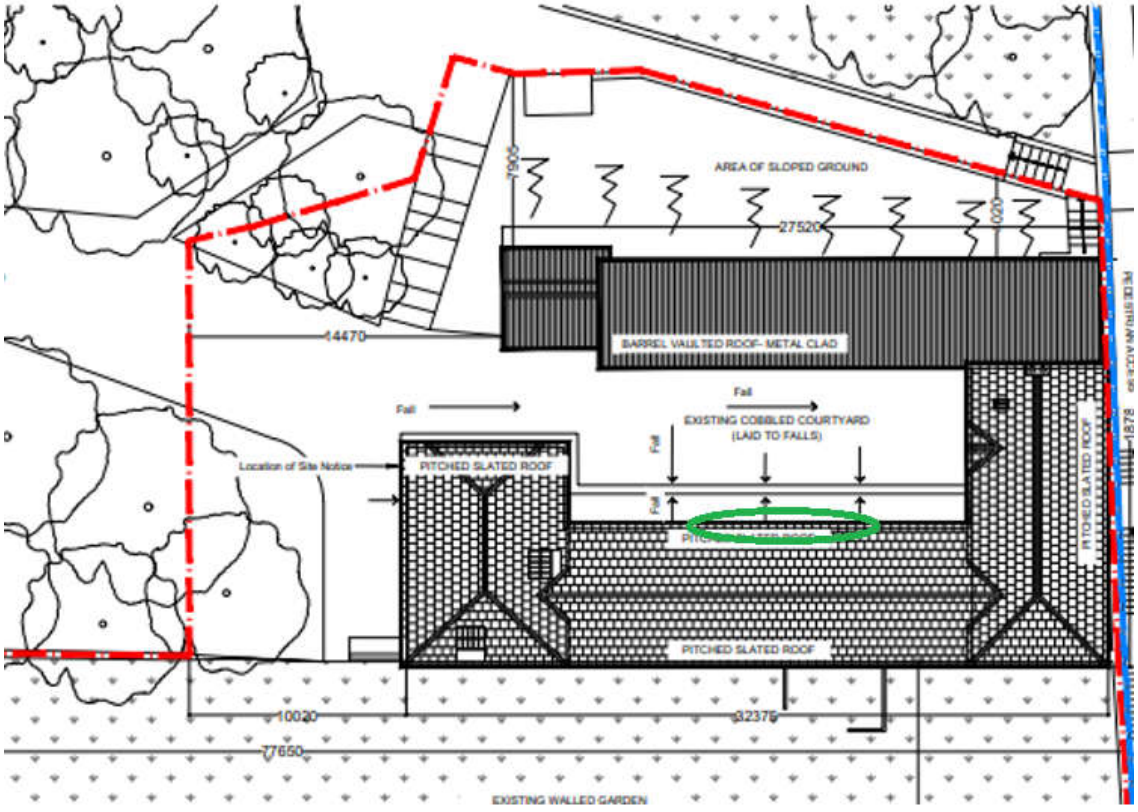
DETECTION SURVEY RESULTS

The two dusk emergence and one re-entry surveys determined the presence of:
Soprano pipistrelles, approximately 8 individuals
Common pipistrelles < 5 individuals
Leisler bat - individuals briefly detected during early dusk only.

Bat activity was sporadic over the site with a focus on sightings and signals being the central yard area. Several (<5) Soprano pipistrelles appeared to emerge from the fascia boards and stonework on the southern elevation of the northern stable block. (Photo 7 and map 3). There is no evidence to suggest Leisler bat roost on the site but are commuting overhead following emergence elsewhere.

Photo 7: Soprano Pipistrelle roost location.

Map 3: Roost location plan.



Soprano and Common pipistrelle were foraging in adjacent vegetation including mature trees to the east of the site. These trees may also be provide roosting sites although there was no visual evidence for this during the survey. There will be no impact on these trees during the proposed development.

POTENTIAL IMPACTS OF PROPOSED WORKS ON BAT FAUNA

The survey results indicate the buildings are of limited use as a bat roost with a small population of Soprano and Common pipistrelle present in a defined area. Negative impacts on the bats and their roosting habitat that are likely to arise from the proposed development can be described as:

1) Physical disturbance including possible injury/mortality.
2) Noise or vibration disturbance during and after construction activities.
3) Lighting disturbance during and permanently following construction activities.
4) Changes to surrounding vegetation at the roost access points.
5) Modification to the roost structure including roof removal, timber replacement and repointing of masonry.

MITIGATION MEASURES

Bats are present in the main stable block building and are probably breeding. Mitigation measures are recommended to ensure

1) Their safety during construction works and
2) Future use of building as a roosting site.

Although evidence of roosting bats in the coach house buildings was minimal, a derogation licence to legally allow proposed building works will be required from the Licensing Department of the National Parks and Wildlife Service. Mitigation measures will include:

- Any structural works including reroofing and pointing will be carried out during autumn/winter months i.e. 1st September to 1st May when bat numbers are then known to be fewer in buildings. This should lessen the impact on these animals and will also avoid the bird breeding season, in particular swallows (*Hirundo rustica*), which are known to breed in the buildings.

- Retention of the identified existing bat roost will be ensured by preserving crevices/openings in the soffit boards and adjacent stonework. Additional crevices will be retained elsewhere on the two storey east facing wall coach house wall and on the main north elevation to facilitate future colonisation by crevice dwelling bat species. Access to soffit boxes and eaves would need small gaps (12-20mm) between the soffit and wall.

- Future timber treatment and replacement timber should be treated with only bat safe chemicals listed in Appendix 3.

- Artificial light can interfere and creates barriers to commuting bats. Any on-site lighting, including the access driveway and adjacent rees should be minimised during the active bat season (March to October). Where lighting is required it will be directional, preferably of low pressure sodium lights with the lowest lux value permitted for Health and Safety. Motion activated timed lighting is preferable to permanent night time lighting.

- Habitat management in the vicinity will encourage the new planting of native shrub and tree species with conversion of amenity lawns to a hay mowing regime to encourage sward diversity and insects.

PREDICTEDIMPACT OF PROPOSED DEVELOPMENT

Renovation of the coach house will change the local environment however following temporary disturbance during construction works and providing mitigation measures are followed, it is considered the proposed development will be of benefit to bats in the long term due to the additional

roosting opportunities afforded by the re-roofed buildings. These buildings will continue to provide roosting and breeding sites for bats.

REFERECES

- Biodiversity Ireland – www.biodiversityireland.ie
- EPA (2003) Advice notes to practice in the preparation of Environmental Impact Statements
- EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements
- NRA Best Practice Guidelines for the Conservation of Bats in the planning of National Road Schemes.
- Richardson, P., (2000) Distribution atlas of bats in Britain and Ireland (1980 – 1999). The Bat Conservation Trust
- Whilde, A. (1993) Irish Red Book 2, Vertebrates, HMSO, Belfast
- Heritage Council (2008) Bat Survey Guidelines: Traditional Farm Buildings Scheme

APPENDIX 1

Bat Ecology – General

The bat is the only mammal that is capable of true flight. There are over 1,100 species worldwide, representing almost a quarter of all mammal species. There are 47 species in Europe – in Ireland, 10 species of bat are currently known to exist, which are classified into two families, the Rhinolophidae (Horseshoe bats) and the Vespertillonidae (Common bats).

Prey

All the European bat species feed exclusively on insects. A pipistrelle, weighing only 4 to 8 grams, will eat up to 3,000 insects every night, ensuring a build-up of fat in the bat's body to allow it to survive the winter in deep in hibernation.

Breeding and Longevity

Irish bats can produce one young per year, but more usually, only one young is born every two years (Boyd and Stebbings, 1989). This slow rate of reproduction inhibits repopulation in areas of rapid decline. Although bats have been known to live for twenty or more years, this is rare as most die in their first and the average lifespan in the wild is four years.

Threats

All bat species are in decline as they face many threats to their highly developed and specialised lifestyles. Many bats succumb to poisons used as woodworm treatments within their roosting sites (Racey& Swift, 1986). Agricultural intensification, with the loss of hedgerows, treelines, woodlands and species-rich grasslands have impacted bat species also. Habitual roosting or hibernation sites in caves, mines, trees and disused buildings are also often lost to development. Summer roosts are prone to disturbance from vandals. Agricultural pesticides accumulate in their prey, reaching lethal doses (Jefferies, 1972). Chemical treatments in cattle production sterilise dung thus ensuring that no insects can breed within it to be fed upon by bats. Likewise, river pollution from agricultural runoff reduces the abundance of aquatic insects. Road building, with resultant loss of foraging and roosting sites is a significant cause for the reduction of bat population across Europe.

Extinction as recently as 1992, the greater mouse-eared bat (*Myotismyotis*) became the first mammal to become extinct in Britain since the wolf in the 18th Century.

APPENDIX 2

Legal Status and Conservation Issues – Bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) seeks to protect rare species, including bats and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

Legal Status of Barn Owls and Swallows

Barn Owls are protected and Red listed in Ireland because their breeding population falling by at least 70%. They are also listed under the European Bern Convention as an Annex II species.
Swallows are also protected and Amber listed.

APPENDIX 3

Timber treatment list

Products suitable for use in a bat roost can be described in terms of the active ingredients (biocides) that they contain.

Any products containing active ingredients listed in the following Table 1 are suitable for use in a bat roost. Products intended for remedial timber treatment may also carry a British HSE number indicating that they have received approval under the UK Control of Pesticides Regulations (COPR) 1986, but decorative finishes usually contain such low levels of biocides that they are exempt from this requirement (in the UK).

Table 1: Insecticides and fungicides suitable for use in bat roosts

Insecticides	Permethrin Cypermethrin Boron compounds
Fungicides	Tri(bexylene glycol) biborate Disodium octoborate Borester 7 Dodecylbenzyltrimethyl ammonium chloride Alkyl(benzyl)dimethylammonium chloride (=Benzalkonium chloride) Copper naphthenate Acypetacs copper Zinc naphthenate Acypetacs zinc Zinc octoate Sodium 2-phenylphenoxide Diclofluanid 3-iodo-2propynyl-N-butyl carbamate (Polyphase/IPBC) Propiconazole

Adapted from English Nature's Species Conservation Handbook.