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1. Introduction

Flynn Furney Environmental Consultants were commissioned by *dhb Architects* to undertake a building assessment for bat roost potential / presence at a building on Market Street, Kiltyclogher, Co. Leitrim. An inspection of the building and rear outbuildings and a dusk emergence survey was carried out on the 7th of October 2023. The unoccupied derelict property is located along Market Street (R283 road), Kiltyclogher, Co. Leitrim, located at ITM 597540 845250, *Figure 1*. The property consists of a ground floor and a partial second storey floor with a slate roof. There are former outbuildings connected to the rear of the building; these are in a derelict state with no roof, *Figures 2 & 3*. The surveyed building has attached buildings on both sides and the property was accessed via the rear garden.

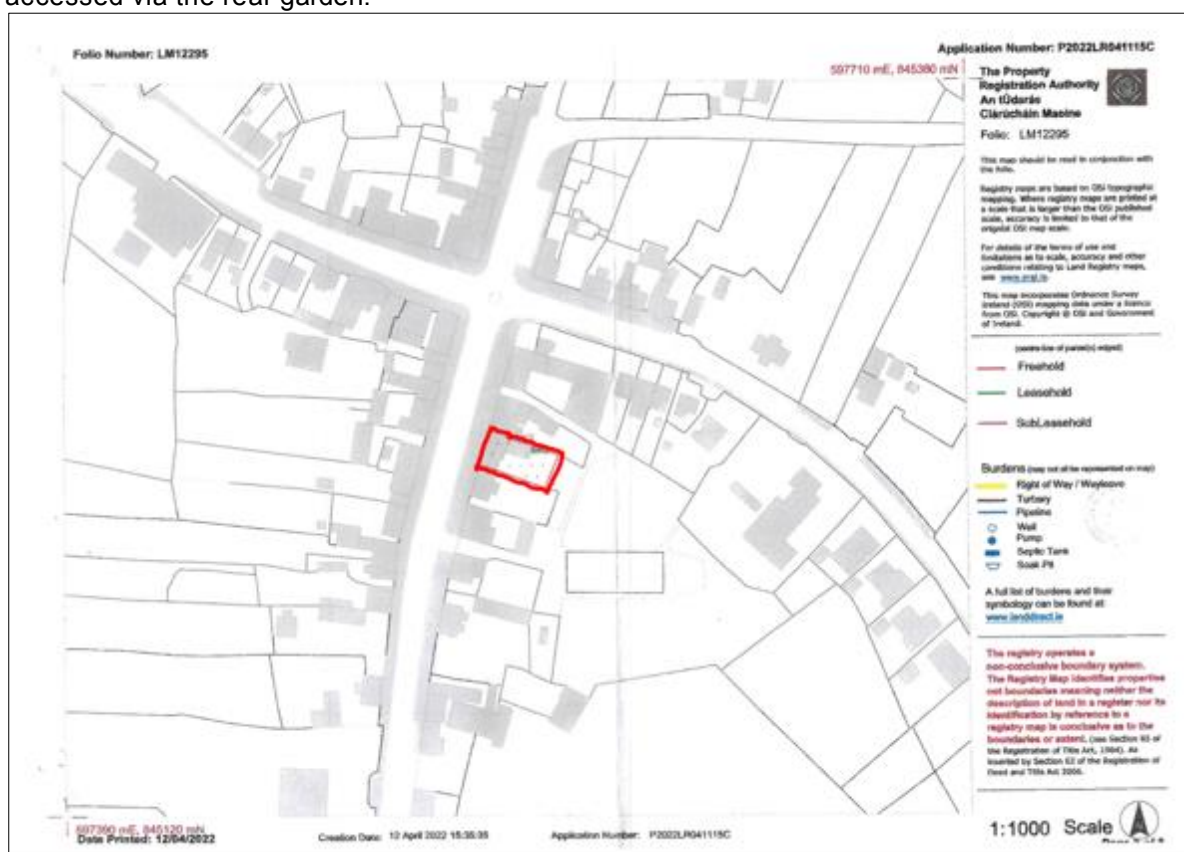


Figure 1. Location of proposed development



Figure 2. *View of the front of the site, taken from Market Street.*



Figure 3. *View of the rear of the site, taken from the back garden.*

2. Legislation and bats

All bat species are protected by law in Ireland at a national and European level. Nationally, the Wildlife Act 1976 (amended 2000) makes it an offence to wilfully interfere with, or destroy, the resting or breeding place for bats. All species of Irish bats are listed under Schedule 5 of the Wildlife Act (1976) making 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

The EU 'Habitats' Directive (92/43/EC; transposed into Irish law by S.I. No. 94 of 1997) provides legal protection for bats and their roosts at a European Union level. In addition, the Irish government are signatories of the 1979 Bonn 'Convention on the Conservation of Migratory Species of Wild Animals' and the 1982 Convention on the 'Conservation of European Wildlife and Natural Habitats'. Ireland must also fulfil commitments under the 1991 'Eurobats Agreement' for the conservation of bats in Europe. Under the EU Habitats Directive, lesser horseshoe bats are listed as an Annex II species (afforded special protection). All other Irish bat species are listed in Annex IV (general protection) of this directive.

Under existing legislation, the destruction, alteration or evacuation of a known bat roost requires the National Parks and Wildlife Service (NPWS) being notified before works can commence on or adjacent to a known bat roost. A derogation licence from NPWS must be obtained prior to commencement of works.

3. Methodology

3.1 Desk study

The property is in tetrad G94S (a tetrad being an area of 2km²). A search of bat records held on the National Biodiversity Datacentre's (NBDC) online portal¹ for this tetrad, was requested. In addition, given the site's proximity to County Fermanagh, a search of the Bats of Northern Ireland database was also carried out². Such information can identify bat species which may occur at the proposed development site or in the local area. It should be noted no records is likely to reflect an absence of survey data and cannot be taken as confirmation that a particular species is not present at the site or surrounding area.

3.2 Building searches

Suitable features on the exteriors and interiors of buildings were searched using a hand torch and an endoscope. Evidence for bat presence includes dead and live animals, bat droppings, urine staining,

¹ <https://maps.biodiversityireland.ie/Map/Terrestrial/Dataset/128> Accessed October 5th, 2023.

² <https://maps.biodiversityireland.ie/Map/Terrestrial/Dataset/247> Accessed October 5th, 2023.

greasy marks at crevice entrances and lack of cobwebs at entrance to crevices and gaps. Due to the height of the house, soffits and fascias could not be examined up close, with the assessment being carried out from ground level using binoculars. Also, the second storey wooden floor inside the building was not deemed safe to fully access due to its poor structural state. Windows and the front exits were boarded up.

3.3 Bat emergence watch

A dusk bat emergence watch was undertaken on the evening of the 7th of October. The selected vantage point was in the rear garden where full views of the rear of the building and the roof were afforded. The front of the building faces the village street and is illuminated by street lighting, rendering it less likely to be used by bats, so therefore a watch was not undertaken of the front. Also, the front of the building is in a structurally sounder condition, with less features that bats may use for roosting or accessing the interior. The dusk watch started at 18:25 (thirty minutes before a 18:55 sunset). Weather conditions were calm, dry and mild with an air temperature of +15°C at 19:00. The emergence watch lasted until 20:00, at which time the level of darkness prevented the surveyor from accurately locating the origin of any detected bat species. An Echometer EM3 full spectrum bat detector was used.

4. Results

4.1 Desk Study

The NBDC database search returned no bat records for tetrad G94S, the tetrad within which the site is located. An online search was also made of adjacent tetrads with bat records located in tetrad G94N (the tetrad to the northwest of the site). These records are listed in Table 1. The search of the Northern Ireland Bat Database returned bat records within an adjacent 10sq km, Table 2.

Table 1. Bat records as per NBDC online portal for tetrad G94N

G94N bat records				
Grid Reference	Year	Survey dataset	Surveyor	Species
G953479	1998	National Bat Database of Ireland – ‘Bridge usage by bats survey’	C. Shields	Daubenton’s bat <i>Myotis daubentonii</i>
G947469	1998	National Bat Database of Ireland – ‘Bridge usage by bats survey’	C. Shields	Natterer’s bat <i>Myotis nattereri</i>
Northern Ireland bat records				
Grid Reference	Date	Survey dataset	Surveyor	Species
H094403	1991	Bats of Northern Ireland	H. McCann	Brown long-eared bat <i>Plecotus auritus</i>
H0248	1996	Bats of Northern Ireland	J. Russ	Leisler’s bat <i>Nyctalus leisleri</i>

In addition, Bat Conservation Ireland's habitat suitability index³, available to view on the NBDC online mapping portal, classifies tetrad G94S, within which the site is located, as having a low to moderate habitat suitability for bats. A bat habitat suitability index score of 20.33 was assigned to most of this tetrad, with the northwestern section of the tetrad assigned an index score of 25.11. The three bat species most likely to be found in this tetrad, as per the habitat suitability index, are Soprano pipistrelle *Pipistrellus pygmaeus* (index value of 33), common pipistrelle *Pipistrellus pipistrellus* (index value of 32) and Daubenton's bat *Myotis daubentonii* (index value of 27).

4.2 Building searches

Usage of the building by bats was confirmed by the presence of scattered bat droppings on both the ground floor and the stairs. The droppings were both old and fresh with most of them belonging to brown long-eared bat *Plecotus auritus*, *Figure 4*. Discarded moth and butterfly wings were noted in piles inside the building, indicating a feeding perch by this species, *Figure 5*. Additionally, smaller droppings, characteristic of pipistrelle species, were also noted scattered around the stairs and on the accessible section of the wooden second storey floor. A live bat was noted roosting in a crease of hanging roof felt, directly over the stairs, *Figure 6*, prompting the surveyor to immediately withdraw from the building to avoid creating any disturbance. The species of this bat is unknown.



Figure 4. *Brown long-eared bat droppings.*

³Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N. (2011) *Landscape conservation for Irish bats and specific roosting characteristics*. Bat Conservation Ireland. Accessed October 5th, 2023.



Figure 5. Discarded butterfly and moth wings on second storey floor. Indicative of a brown long-eared bat's feeding perch.



Figure 6. Bat species observed roosting in felt hanging over the stairway.

4.3 Emergence watch

The emergence watch of the rear of the building commenced at 18:25. A single soprano pipistrelle emerged from an upstairs window at 19:06, *Figure 7*, and flew across the garden towards the southeast. At 19:34 a brown long-eared bat was noted flying in a circular pattern over the ground floor in the section of the building with no ceiling. This area provides sufficient height and width for this pre-emergence behaviour which is characteristic of brown long-eared bats. No further bats were noted emerging. At 19.41, a Leisler's bat *Nyctalus leisleri* was detected passing over the garden but was not confirmed as having emerged from the building.



Figure 7. *Second storey rear window from which a single soprano pipistrelle emerged.*

5. Discussion

5.1 Bats

Two species of bat were confirmed as using the building as a roost: soprano pipistrelle and brown long-eared bat. The building search and emergence watch were undertaken outside of the optimal bat surveying season, May to September, so future surveys during this time frame are required. This survey represents a 'snapshot' in time and as bats are a transitional species and move between suitable roosting locations throughout the year, it is not possible to accurately determine the type of roosts, abundance of bats and range of species based on this limited survey effort. Once the status of bats using the building and their roosts is established, appropriate mitigation measures can be proposed by an appointed ecologist who will undertake the surveys. As the building is a confirmed roost, a derogation licence must be obtained from NPWS prior to the commencement of any works on the building. A derogation licence may only be issued if the mitigation measures proposed are sufficient to ensure that

there will be no negative impact on the conservation status of the bats. It should be noted that legal protection of the building is in place all year round, even during times that bats are not occupying it.

5.2 Possible mitigation and bat enhancement measures

Note that the bat survey effort to date is not sufficient for appropriate and specific mitigation measures to be proposed and further surveys and assessments are required. However, some general mitigation measure possibilities are provided below:

Once water tanks are covered, bat roosts create little, if any, issues when roosting in residential / commercial roof spaces. The installation of permanent access openings into the roof space should be considered, *Figure 7*. Following renovation works, such an action would allow bats to continue to use the roof space as a roosting.



Figure 7. Example of an adapted roof slate that permits bat access to a roof space.

Brown long-eared bats were confirmed using this building. And whilst the type of roost cannot be determined from this survey, the installation of a panel-style roost into the roof space is an option. The project ecologist can determine if this is a suitable mitigation measure based on the results of the required future surveys. A space with an approximate surface area of 1 square metre can be created between the rafters and separated from the rest of the loft space with plywood or hardwood boards. It is not possible for the bats to access the rest of the roof space from inside the panel-roost. Appropriately designed bat access points lead from the panel roost to the outside of the building; these access points should be on the southerly, south-westerly or south-easterly facing aspects of this building. Access can be a single raised tile, a gap under the ridge tile or access underneath a raised bargeboard. It is crucial that the roof lining used is made from bitumen and not the breathable membrane. Non-breathable 1F bitumastic membrane is now the only roof lining that is accepted as being 'bat friendly'.

Additionally, bat boxes should also be considered. Schwegler 1FFH Universal bat boxes provide potential roosting opportunities for many species of bat. These boxes should be erected on the southerly, south-westerly or south-easterly aspects of the building. The boxes should be erected at a height of 5 metres above ground level in areas of not affected by streetlight or residential illumination.

5.3 Birds

Evidence of recent nesting by barn swallow *Hirundo rustica* was noted inside the building, *Figure 8*. Construction works should be carried out outside the bird breeding season, or the building should be sealed before the bird breeding season starts (March 1st to August 31st) to prevent birds nesting in the buildings.

If construction works commenced or are ongoing during the bird breeding season, then the internal and external surfaces of the buildings should be checked for active nests. If a nest is found, consultation with an ecologist and National Parks and Wildlife Service (NPWS) will be required to determine the best course of action. These measures are required to avoid committing an offence under Section 22 of the Wildlife Act 1976-2018 as amended regarding the enforcement of the protection of wild birds.



Figure 8. Remains of hatched barn swallow eggs found on the ground floor of the building.

Alternative and new nesting sites should be provided (if practical to do so) using nest boxes of a specific design to suit barn swallows and affix them to overhanging eaves of the renovated building, *Figure 9*. The installation of the boxes should be advised and overseen by an ecologist.



Figure 9. *Example of swallow nest box. The open shelter situation is important to mimic that of an open barn/shed.*

6. Conclusion

Two species of bat were confirmed using the building as a roost during the survey on October 7th. Further surveys, undertaken during the appropriate time of year, are required to establish roost types, bat abundance and the range of species that are using the building. The results of these surveys will determine the mitigation measures required to ensure that there is no negative impact on the conservation status of the bats. An NPWS derogation licence is required prior to the commencement of any works as the building is a confirmed bat roost. The retention of the roosts is the optimum outcome and mitigation measures should focus on enabling the bats to continue using this building. This is especially important at a time when many older buildings are being demolished or renovated, reducing available sites for bats to roost.
