



Forestry, Ecology & Environment

Bat Survey Report

Belview Orphanage, Tyrellspass, Co. Westmeath

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Prepared for: Westmeath County Council



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Introduction

Veon Ecology was commissioned by Deck Building Services DAC to undertake a bat survey including a preliminary roost assessment (PRA) of structures on the site of a proposed development at Belevdere Orphanage, Tyrellspass, Co. Westmeath. This survey aimed to identify any potential roost features (PRFs) and assess the presence or likely absence of roosting bat species at the site, in compliance with condition no. 6 from the Department of Housing, Local Government and Heritage, as outlined below:

6. The following requirements of the Department of Housing, Local Government and Heritage shall be complied with:

a) Prior to commencement of development on site a bat survey shall be carried out by a suitably qualified ecologist during the active season for bats.

b) If bat species are identified at the site, information relating to mitigation measures to be employed shall be submitted by the developer to the Department.

Reason: As the proposal has the potential to disturb the roosting habitat of a species listed under Annex IV of the EU Habitats Directive.

A PRA is a detailed inspection of the exterior and interior of a structure or tree in order to identify features that bats could use for entry/exit and roosting and to search for signs of bats.

The absence of bats and/or bat signs during this survey does not equate to evidence that the feature in question is inactive. To meet the requirements of the brief, the scope of the assessment included the following:

- Detailed inspection and assessment of buildings for evidence of bat activity carried out by suitably qualified ecologist to best practice guidelines.
- A dusk/emergence survey to confirm the presence/absence of roosting bats and characterise bat activity within site area.



Figure 1: Survey Area with target building outlined in red.

Site description

The site area is located within in the environs Tyrellspass, Co. Westmeath in a peri-urban environment. The site is comprised of buildings and hardstanding artificial surfaces (Fossitt code: BL3). The site is bordered by mostly residential buildings (BL3) and farmland comprising of grassland (GA1) and hedgerows (WL1). The target building experiences high levels of light ingress due to large windows. Some gaps are present in the attic, exposing it to light, wind and rain ingress.

Irish Bat Species

All Irish bat species are protected under the *Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010)*. 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. All Irish bats are listed in Annex IV of the Habitats Directive and the Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II.

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. Also, under existing legislation, the destruction, alteration, or evacuation of a known bat roost is a notifiable action, and a derogation licence must 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 licence to derogate from Regulation 23 of the Habitats Regulations 1997 and Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011 (which transposed the EU Habitats Directive into Irish law), issued by 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 *Circular Letter NPWS 2/07 "Guidance on Compliance with Regulation 23 of*

the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16th of May 2007.

There are eleven recorded bat species in Ireland, nine of which are considered resident, two as Vagrant, namely:

1. Common pipistrelle (*Pipistrellus pipistrellus*)
2. Soprano pipistrelle (*Pipistrellus pygmaeus*)
3. Nathusius' pipistrelle (*Pipistrellus nathusii*)
4. Leisler's bat (*Nyctalus leisleri*)
5. Brown long-eared bat (*Plecotus auratus*)
6. Natterer's bat (*Myotis nattereri*)
7. Whiskered bat (*Myotis mystacinus*)
8. Daubenton's bat (*Myotis daubentonii*)
9. Lesser horseshoe bat (*Rhinolophus hipposideros*)
10. Brandt's bat (*Myotis brandtii*) (**Vagrant**)
11. Greater horseshoe bat (*Rhinolophus ferrumequinum*) (**Vagrant**)

Eight resident bat species and one of the vagrant bat species are vesper bats and all 'vesperilionid bats' have a tragus (cartilaginous structure inside the pinna of the ear). Vesper bats are distributed throughout the island. Nathusius' pipistrelle (*Pipistrellus nathusii*) is a recent addition while the Brandt's bat has only been recorded once to-date (Only record confirmed by DNA testing, all other records has not been genetically confirmed).

The ninth resident species is the lesser horseshoe bat (*Rhinolophus hipposideros*), which belongs to the Rhinolophidea and has a complex nose leaf structure on the face, distinguishing it from the vesper bats. This species' current distribution is confined to the western seaboard counties of Mayo, Galway, Clare, Limerick, Kerry, and Cork. The eleventh bat species, the greater horseshoe bat, was only recorded for the first time in February 2013 in County Wexford and is therefore considered to be a vagrant species. A bat detector record for this species was confirmed for Co. Wicklow in 2020. A total of 41 SACs have been designated for the Annex II species lesser horseshoe bat (1303), of which nine have also been selected for the Annex I habitat 'Caves not open to the public' (8310).

Irish bat species list is presented in **Table 1** below, along with their current conservation status.

Conservation status

Table 1: Conservation Status of Irish Bat Species

Species	Irish Status	European Status	Global Status
Resident Bat Species			
Daubenton's Bat <i>Myotis daubentonii</i>	Least Concern	Least Concern	Least Concern
Whiskered Bat <i>Myotis mystacinus</i>	Least Concern	Least Concern	Least Concern
Natterer's Bat <i>Myotis nattereri</i>	Least Concern	Least Concern	Least Concern
Leisler's Bat <i>Nyctalus leisleri</i>	Least Concern	Least Concern	Least Concern
Nathusius' Pipistrelle <i>Pipistrellus nathusii</i>	Least Concern	Least Concern	Least Concern

Common Pipistrelle <i>Pipistrellus pipistrellus</i>	Least Concern	Least Concern	Least Concern
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	Least Concern	Least Concern	Least Concern
Brown Long-eared Bat <i>Plecotus auritus</i>	Least Concern	Least Concern	Least Concern
Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i>	Least Concern	Least Concern	Least Concern
Possible Vagrants			
Brandt's Bat <i>Myotis brandtii</i>	Data Deficient	Least Concern	Least Concern
Greater Horseshoe Bat <i>Rhinolophus ferrumequinum</i>	Data Deficient	Near Threatened	Near Threatened

Survey Methodology

Daytime Inspections

Daytime inspections were carried out to determine the potential presence of bat roosts within the survey area. Due to the transient nature of bats and their seasonal life cycle, there are different types of bat roosts. Where possible, one of the objectives of the surveys was to be able to identify the types of roosts present, if any. However, the determination of the type of roost present depends on the timing of the survey and the number of bat surveys completed. Consequently, the definition of any roost types, in this report, will be based on the following in **Table 2** below:

Table 2: Bat Roost Types (Collins 2016).

Roost Type	Definition	Time of Survey
Day Roost	A place where individual bats or small groups of males, rest or shelter in the daytime but are rarely found by night in the summer.	Anytime of the year
Night Roost	A place where bats rest or shelter in the night but are rarely found in the day. May be used by a single bat on occasion or it could be used regularly by the whole colony.	Anytime of the year
Feeding Roost	A place where individual bats or a few bats rest or feed during the night but are rarely present by day.	Anytime of the year
Transitional Roost	A place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.	Outside the main maternity and hibernation periods
Swarming Site	Where large numbers of males and females gather. Appear to be important mating sites.	Late summer and autumn
Mating Site	Where mating takes place.	Late summer and autumn
Maternity Site	Where female bats give birth and raise their young to independence.	Summer months
Hibernation Site Satellite Roost	Where bats are found, either individually or in groups in the winter months. They have a constant cool temperature and humidity.	Winter months in cold weather conditions

Satellite Roost	An alternative roost found in close proximity to the main nursery colony and is used by a few individuals throughout the breeding season.	Summer months
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Building & Structure Inspection

Structures, buildings, and other likely places that may provide a roosting space for bats were inspected during the daytime for evidence of bat usage. Evidence of bat usage is in the form of actual bats (visible or audible), bat droppings, urine staining, grease marks (oily secretions from glands present on stonework), claw marks and the presence of bat fly pupae (bat parasite).

Inspections were undertaken visually with the aid of a strong torch beam (High-powered Maglite©) and endoscope (Model: Explorer Premium Wireless inspection camera).

Buildings were assessed to determine their suitability as a bat roost and described using the parameters Negligible, Low, Medium, or High suitability (Kelleher & Marnell (2006)) in line with **Table 3** below.

Surveying was carried out within the recommended months from May to September (Collins, 2016). The level of suitability informed the level of surveying required, where deemed necessary to gather information on any bat roosts present.

Table 3: Roost Classification, features, suitability descriptions, and survey effort (compiled from Collins (2016) and Kelleher & Marnell (2006)).

Suitability	Description of Roosting Habitats	Description of Commuting and Foraging Habitats
Negligible	Negligible habitat features on site, unlikely to be used by roosting bats.	Negligible habitat features on site, unlikely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used opportunistically by individual bats. 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 or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by a small number of commuting bats such as isolated hedgerows with substantial gaps in them or un-vegetated streams that are not very well connected to the surrounding landscape by other habitats. 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 or tree with one or more potential roost location 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 (<i>with respect to roost type only – the assessment in this table is made irrespective of species conservation status, which is established after presence is confirmed</i>).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitats that are connected to the wider landscape that could be used

		by bats for foraging such as trees, scrub, grassland, and water.
High	A structure or tree 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 habitat.	Continuous high-quality habitat connected to the wider landscape that could be used by bats for commuting such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely 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.

Tree Potential Bat Roost (PBRs) Inspection

Trees that may provide potential roosting space for bats were classified using the Bat Tree Habitat Key (BTHK, 2018) and the classification system used is from Collins (2016). The Potential Roost Features (PRFs) listed in this guide are used to determine the Potential Bat Roost (PBR) value of trees.

Trees identified as PBRs were inspected during the daytime, where possible, for evidence of bat usage. Evidence of bat usage is in the form of actual bats (visible or audible), bat droppings, urine staining, grease marks (oily secretions from glands present on stonework) and claw marks. As described above, the presence of bat fly pupae (bat parasite) can also indicate current or historic bat presence.

- Inspections of trees within the proposed development site that may be suitable as roosting sites for bats are closer examined visually with the aid of a strong torch beam (High-powered Maglite©) and endoscope (Model: Explorer Premium Wireless inspection camera) during the daytime searching for PRFs, if visible.

If a tree is deemed to be a roost site, then further surveying involving dusk and dawn surveys of the actual trees may be recommended to determine what bat species are present, etc.

Table 4: Tree Bat Roost Category Classification System (Collins 2016)

Tree Category	Description
1 (High)	Trees with multiple, highly suitable features (Potential Roosting Features = PRFs) capable of supporting larger roosts
2 (Moderate)	Trees with definite bat potential but supporting features (PRFs) suitable for use by individual bats.
3 (Low)	Trees have no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features (PRFs) which may have limited potential to support bats.
4 (Negligible)	Trees have no potential.

Dusk/Emergence Survey

Bat Activity Survey

This section of surveys was carried out by a bat surveyor with the aid of handheld *Echometer Touch* omnidirectional Heterodyne bat detectors. As bats are nocturnal, it is difficult to observe bats visually. As bats use echolocation to hunt and navigate in their environs, echolocation calls are used to identify bat species and therefore bat detectors are the principal tool to aid bat surveys.

Dusk emergence times vary by species, see **Table 5** below, therefore any survey should aim to start around 30 minutes before sunset to ensure time for the surveyors to get into position, and continue for up to 2 hours after sunset.

Our surveyor positioned themselves adjacent to the building(s)/structure(s) to be surveyed to determine if bats were roosting within, location of roost, number of bats, bat species, etc. As standard, surveyors must not stand more than 50m from potential roost sites to ensure they can see the area in sufficient detail, to ensure all aspects of the tree, building, or structure are viewable at all times during the survey period, in particular those areas of potential exit/re-entry.

As a rule of thumb if there has been no emergence of one species for around 20 minutes all the bats of that species will have emerged. However, if more than one species is predicted at the roost, the survey must continue beyond this time.

The surveyor used a bat detector to alert him to the presence of bats and a torch assisted with locating the bat(s) and where possible to record specific roosting areas within the building(s).

Table 5: Mean/Average Dusk and Dawn Emergence/Re-entry times by species.

Species	Emergence (Dusk) Timings	Re-Entry (Dawn) Timings
Daubenton's (<i>Myotis daubentonii</i>)	30-40 minutes after sunset	2hrs-40 minutes before sunrise
Leisler's (<i>Nyctalus leisleri</i>)	Usually around 5 minutes after sunset but can be 0	At sunrise
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	10 minutes before to 30 minutes after sunset	30 minutes before to 30 minutes after sunrise
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	Usually, 20 minutes after sunset but can be 10 minutes before to 30 minutes after sunset.	30 minutes before to 30 minutes after sunrise
Whiskered (<i>Myotis mystacinus</i>)	30 minutes after sunset	30 minutes before sunrise

Nathusius' Pipistrelle (<i>Pipistrelle nathusii</i>)	10 minutes before to 30minutes after sunset	30 minutes before to 30 minutes after sunrise
Brown Long-eared (<i>Plecotus auratus</i>)	1 hour after sunset	1 hour prior to sunrise
Lesser horseshoe (<i>Rhinolophus hipposideros</i>)	30-40 minutes after sunset	30 minutes before sunrise
Natterer's (<i>Myotis nattereri</i>)	75 minutes after sunset	1-2 hours prior to sunrise

Walking transects involved the surveyor(s) walking the survey area and surrounding areas, noting the time, location and bat species encountered. Surveys were completed, during mild and dry weather conditions with air temperature 8°C or greater. All bat encounters were noted during surveys. Prior to mapping, validation of bat records was completed by the bat surveyor.

Bat Registrations

A bat registration is defined in this report as a recording of bat echolocation, social or distress calls. Recordings are saved in segments up to 15 seconds long. A single bat can be attributed to several registrations if this bat is producing calls close to the bat surveyor for a period greater than 15 seconds.

Results

A day survey and a dusk survey were carried out on the property.

	Day Survey	Dusk Survey
Date	28 TH September 2025	28 th September 2025
Start time	17:00	18:45
Finish Time	18:20	20:45
Weather conditions	Dry, cloudy	Dry, cloudy

Table 6: Results of PRA roost Survey after Day inspection and Dusk Emergence Survey

Building Code	Internal Inspection (Y/N)	External Inspection (Y/N)	Roosts and Bat Species
Structure 1	Y	Y	None

Structure Surveys

The property (structure 1) was surveyed on 28th September 2025 by Donnachadh Powell. The aim of this survey was to identify PRFs and to check for signs of current or historic roosting bats. These signs include bat droppings, urine stains or scratch marks. *Everything within the red line is deemed within the footprint of the project and all areas outside red line are deemed as outside the footprint of the site.*

Structure 1

The building is in a state of dereliction, and its structure is in poor condition due to a lack of maintenance. However, there were a total of 3 droppings recorded which indicate historic use by bats. These droppings were not fresh and had layers of dust/cobwebs on them, indicating they were present for a significant amount of time. (See Photo below).



Bat dropping recorded on site

Dusk/Emergence Survey

The survey area had low levels of bat activity recorded during the dusk survey. There were no social calls or “feeding buzz” echolocation calls detected, indicating the site holds low value to local bat populations due to a lack of foraging opportunities. Any bats recorded during the survey were observed commuting through the site on the outer boundaries of the survey area. No bats were recorded within the building.

Desktop Research

National Biodiversity Data Centre (NBDC)

The National Biodiversity Data Centre (NBDC) has a Bat Suitability Index (BSI) for the nine resident species of Bats in Ireland within the property boundaries (Lundy *et al.* 2011). The overall suitability of the area for bat activity was moderate (18.89). The habitat suitability index for ‘All bats’ and for each individual species of bat is presented below (See Figure 6 below). The index ranges from 0 to 100, with 100 being most suitable for bats.

Bat Suitability Index

<i>Suitability index for different bat species:</i>		
<i>Common Name</i>	<i>Scientific Name</i>	<i>Suitability Score</i>
<i>Soprano pipistrelle</i>	<i>Pipistrellus pygmaeus</i>	<i>38</i>
<i>Brown long-eared bat</i>	<i>Plecotus auritus</i>	<i>27</i>
<i>Common pipistrelle</i>	<i>Pipistrellus pipistrellus</i>	<i>40</i>
<i>Lesser horseshoe bat</i>	<i>Rhinolophus hipposideros</i>	<i>0</i>
<i>Leisler's bat</i>	<i>Nyctalus leisleri</i>	<i>37</i>
<i>Whiskered bat</i>	<i>Myotis mystacinus</i>	<i>11</i>
<i>Daubenton's bat</i>	<i>Myotis daubentonii</i>	<i>25</i>
<i>Nathusius' pipistrelle</i>	<i>Pipistrellus nathusii</i>	<i>8</i>
<i>Natterer's bat</i>	<i>Myotis nattereri</i>	<i>30</i>

Figure 2: Bat Suitability Index (NBDC 2023)

NBDC 10km² Record

The study area is situated within the NBDC 10km Grid Square N43. The NBDC records for bat species recorded within the 10km grid square are as follows:

Historic records of bats were recorded within the 10km² grid square (N43) in which the study area is located and includes the following species: Soprano Pipistrelle (*Pipistrellus pygmaeus*), Leisler's Bat (*Nyctalus leisleri*), Common Pipistrelle (*Pipistrellus pipistrellus sensu stricto*) and Daubenton's Bat (*Myotis daubentonii*).

Table 7: NBDC Bat Records within O13 10kmx10km Grid Square

Bat Species	Scientific name	Date of last record
All Bats		
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	25/05/2020
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	25/05/2020
Leisler's Bat	<i>Nyctalus leisleri</i>	08/06/2020
Daubenton's Bat	<i>Myotis daubentonii</i>	25/05/2020

Potential Impacts

Bat fauna within the survey area can be affected by both the construction phase and operational phase of the proposed development. The additional artificial lighting introduced to an area that already experiences lighting disturbances are the most significant impacts predicted for local bat ecology. The proposed works may cause temporary disturbance to commuting and foraging bats near the site of proposed works. No bat roosts were present on site or within the project area, so roost impact is predicted as negligible.

Mitigation

Lighting

Lighting plans should be designed for the site to ensure that there will minimum impact on local bat populations, post works. It is important that this is implemented and complimented with the lighting plans for the current proposed development.

This element of the proposed planning application is an extremely important aspect in relation to local bat populations.

All European bat species, including Irish bat species, are nocturnal. They usually hide in roosts during the daytime, while fly to feeding areas or drinking sites using commuting routes during the night. Annually bats will hibernate in the winter, swarm in the autumn, and give birth in the summer months.

In all aspects of the bat lifestyle, Artificial Light at Night (ALAN) may significantly change their natural behaviour in relation to roosting, commuting, and feeding. While bats are naturally exposed only to very low lighting levels

produced by moonlight, starlight and low intensity twilight, light levels greater than natural light levels can impact on the lifestyle of bats.

Construction Phase Lighting

Where construction lighting is required, lighting should be directed towards the project site to reduce light spillage outside of the project area. This can be achieved by the use of directional lighting (i.e. lighting which only shines on the proposed works and not nearby countryside) to prevent overspill. This should be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres, and shields to direct the light to the intended area only.

Lighting should be minimised in known foraging and commuting areas (the hedgerows), and the times during which the lighting is on should be limited to provide some dark periods. Lights should be positioned to avoid sensitive areas and restricted so that there are dark areas. The timing of lights should be restricted to avoid bat activity (i.e. from dusk until dawn). Carrying out works during the hibernation period (i.e winter months) will further reduce potential impacts on the local bat populations.

Conclusion

Overall, a low bat activity was recorded within the study area, and no bat species were found to be roosting in the target structures on site. There were some observations of foraging bats nearby outside the building close to the hedgerows/trees nearby. All bats recorded were commuting through the site. No foraging behaviour was noted during the survey. No roosting bats were recorded emerging from the building. The building is subject to high levels of light ingress, which reduces the suitability of the building for use by roosting bats. Moreover, the presence of numerous artificial lights around the site likely deters bats from roosting on site.

Although signs of historic roosting by small numbers of individual bats were observed (3 individual droppings), these were not fresh or recent, and were like from bats that roosted in the structure when it had high potential/suitability to support roosting bats i.e. when light, wind and rain ingress levels were significantly lower. The low number of droppings recorded (3) suggest the building was never used as a maternity roost or used by significant numbers of bats. The building may still support small numbers of roosting bats intermittently, and therefore it is recommended that an ecologist survey the interior of the building for fresh signs of bat activity immediately prior to the proposed works commencing.

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