Bat Survey Report & Derogation Licence Application

Moneygorm Residential Renovation, Co. Waterford, P51VCH9.

December 2024

Prepared for:

Gobnait Ní Néill & Derek Riordan

CIEEM REGISTERED PRACTICE 2024-2025

O'DONNELL ENVIRONMENTAL

Summary

Project: Moneygorm Residential Renovation, Co. Waterford, P51VCH9.

Coordinates: S 05019 02905 (IG); 52.178263, -7.9273373.

Report by: Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM.

Statement of Competence: O'Donnell Environmental is an independent environmental consultancy established by Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM in 2019. O'Donnell Environmental is a Chartered Institute of Ecology and Environmental Management (CIEEM) 'Registered Practice' which demonstrates our commitment to high professional standards, accountability and the delivery of the best outcomes for biodiversity and our Clients.

Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has over 10 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2023-16) and to capture bats (C25/2023).

Colm Breslin BSc (Hons) is a Qualifying member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Biological, Earth and Environmental Sciences [Ecology and Environmental Biology] in 2023 from UCC. Colm has experience in habitat mapping, bat activity surveys and preliminary roost assessments for a variety of windfarm and residential developments. Colm is licenced by NPWS for bat roost disturbance (Ref: DER/BAT 2024-09), capture (C03/2024), and photography (008/2024).

Project Reference: 2024/16			
Document Rev. No.	**Status**	**Contributor**	**Date**
A	Draft	CB, TOD	07.11.2024
1	**Final**	CB, TOD	03.12.2024

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Appendices

1 Introduction

Gobnait Ní Néill and Derek Riordan propose to renovate the former residence and associated outbuildings at derelict cottage in Moneygorm, Co Waterford.

A Brown Long-eared Bat maternity colony which was beginning to form was identified by the Client on 13th April 2024 during renovation works. Works were immediately halted and consultation sought by the Client with National Parks and Wildlife Services. Éinne Ó Cathasaigh of the NPWS attended the site and met Gobnait Ní Néill, who gave advice which included engaging a bat licensed Ecologist.

O'Donnell Environmental Ltd. were then commissioned by Gobnait Ní Néill and Derek Riordan to undertake a bat survey report for the project and provide advice on the management and conservation of the colony. The purpose of the current report is to inform a bat derogation license application which will be made to NPWS.

A site location map is presented in **Figure 1**.

Elements of the proposed works which have potential to impact on bats include the following:

- Renovation of the former residence resulting in the permanent loss of roosting opportunities.
- Repairs and reinstatement of outbuildings which have potential to cause temporary disturbance to roosting bats.
- Associated works which has potential to cause disturbance to bat roosting or foraging in the study area.

A bespoke timber Brown Long-eared Bat maternity roost structure ('bat barn') is proposed as a permanent alternative roosting location prior to the commencement of the maternity season (see **Appendix A**).

1.1 LEGAL STATUS OF BATS

All bat species and their roosting sites are protected under both national and international law. The purpose of this legislation is to maintain and restore bat populations within their natural range. Where human activities have the potential to compromise bat populations, measures are required to be put in place to avoid effects or compensate and mitigate for those effects. A grant of planning permission does not constitute a licence or permit to disturb bats or interfere with their breeding or resting places.

The key legislation which provides protection to bats is as follows:

- Wildlife Act (1976) and subsequent amendments which makes it unlawful to intentionally disturb, injure or kill a bat or disturb its resting place without a licence to derogate from Regulation 23 of the Habitats Regulations 1997, issued by National Parks & Wildlife Service (NPWS).

- The EU Habitats Directive (which has been transposed into Irish law with the European Communities (Birds and Natural Habitats) Regulations 2011) which seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of provides additional protection for the Lesser Horseshoe Bat

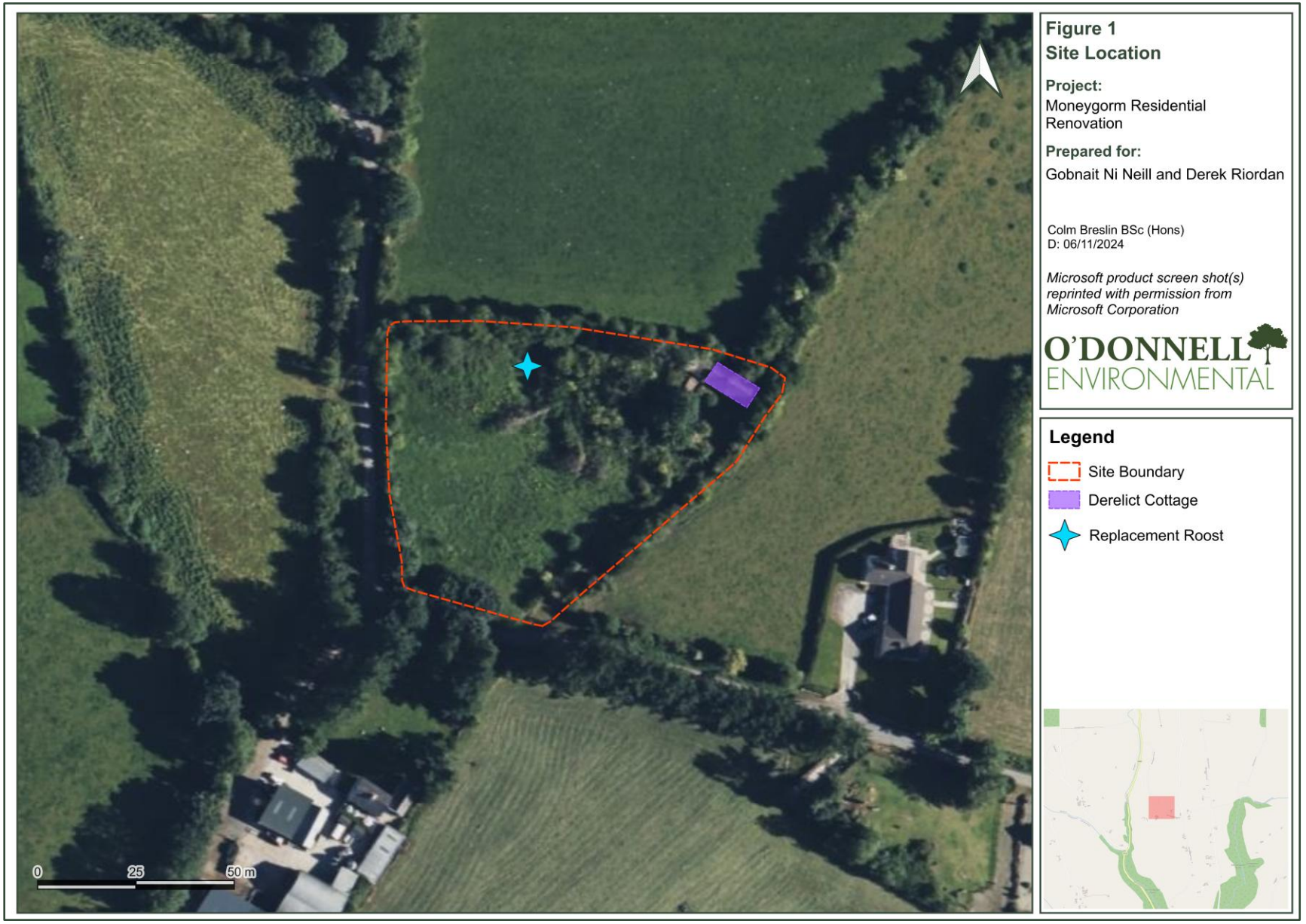
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Figure 1
Site Location
Project:
Moneygorm Residential Renovation
Prepared for:
Gobnait Ni Neill and Derek Riordan
Colm Breslin BSc (Hons)
D: 06/11/2024
Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation
O'DONNELL ENVIRONMENTAL
Legend
Site Boundary
Derelict Cottage
Replacement Roost

2 Methodology

Bat surveys were carried out through desk study, initial preliminary roost assessment, and targeted emergence survey of the derelict cottage. Consideration was also given to the potential for roosting in the associated outbuildings.

2.1 DESKTOP REVIEW

A desktop review of publicly available relevant data was undertaken on the National Biodiversity Data Centre (NBDC) and National Parks & Wildlife Service (NPWS) websites. The National Biodiversity Data Centre was reviewed for relevant data, specifically i) existing species records for the 10km square in which the study site is located (W46) and ii) an indication of the relative importance of the wider landscape in which the study site is located, based on Model of Bat Landscapes for Ireland (Lundy *et al*. 2011). In the latter, the index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The Environmental Protection Agency (EPA) website was reviewed for relevant hydrological or environmental information.

Designated national and international nature conservation sites relevant for bat species were reviewed within the wider hinterland of the proposed redevelopment.

2.2 VISUAL ROOST SURVEY

Daytime visual assessment of the former residence and outbuildings was carried out by Colm Breslin BSc (Hons) and Tom O'Donnell BSC (Hons) MSc CEnv MCIEEM on 8th May, 2nd July and 1st November 2024 to identify bat roosting potential throughout the active bat season. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc.

A detailed preliminary roost assessment (PRA) of all interior and exterior spaces were carried out following guidance set out in Collins (2023) and classified according to the scheme outlined in **Table 2.1**.

Table 2.1 - Scheme for describing the potential suitability of structures for bats.

Suitability	Description
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).
Negligible	No obvious habitat features likely to be used by roosting bats, but a degree of uncertainty remains as seemingly unsuitable features may be used on occasion.
Low	A feature with one or more potential roost sites that could be used by individual bats opportunistically. Potential roost sites which do not provide 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).
Moderate	A structure with one or more potential roost sites that could be used by bats due to characteristics and surrounding habitat but unlikely to support a roost of high conservation status.
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 habitat.

After 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)', Collins (2023).

2.3 EMERGENCE SURVEYS

An emergence (dusk) survey was undertaken by Colm Breslin on 2nd July 2024 on the former residence and outbuildings following Collins (2023).

The surveyor was positioned to maximise views of the structures, in combination with three night vision aids (NVAs) following best practice guidelines (Collins, 2023). Particular attention was applied to any identified access/egress points noted during previous daytime visual roost assessments.

Three Guide IR Pro 19 thermal imaging cameras were positioned to optimise views of structures, following Collins (2023). Echolocation recordings were made on handheld Echo Touch Meter Pro 2 and Anabat Scout full spectrum recorders. Additionally, WA Song Meter Mini full-spectrum detectors were placed within the viewsheds of night vision aids to correlate any potential emergence with echolocation data. The survey was carried out during suitable weather conditions. Surveys are detailed in **Table 2.2**, below. Images showing the field of views from camera placements are shown in **Plate 2.1** to **Plate 2.3**.

Table 2.2 - Bat activity survey details.

Date	Survey	From - To Times	Sunrise / Sunset Time	Weather
2nd July 2024	Emergence	21:30 – 23:15	23:30	13°C; F1; 8 Oktas; Brief and light mist twice.

Plate 2.1 Viewshed of thermal camera covering the front/southern aspect of the former residence.

Plate 2.2 Viewshed of thermal camera and surveyor covering the rear/northern aspect of the former residence, with Brown Long-eared Bat emerging from main access/egress point through open window (white circle).

Plate 2.3 Viewshed of thermal camera covering the western aspect of the former residence, with Common Pipistrelle emerging from above the window lintel (white circle).

2.4 EVALUATION & IMPACT ASSESSMENT

Evaluation of ecological features follows the NRA (now TII) publication 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (2009). Impact assessment follows 'Guidelines on The Information to be Contained in Environmental Impact Assessment Reports' published by the EPA (2022). Reporting generally follows Chartered Institute of Ecology and Environmental Management (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine'.

2.5 SURVEY LIMITATIONS

Full access was provided by the Client. The former residence and associated outbuildings were surveyed in their entirety of both exterior and interior aspects at multiple times of the year throughout the bat active season. The emergence survey was undertaken within the core of the bat maternity season at the optimal time of year following Collins (2023). Considering the simple nature of the former residence, and dilapidated state of the associated outbuildings, the there are considered to be no limitations associated within the discussed methodology and report.

3 Results

The proposed site occurs within the rural landscape north of Lismore Town, and in close proximity to the Carrignagower and Cooladalane Wood valleys. The surrounding locality receives minimal disturbance in the form of light and noise pollution. The site is sheltered in nature, with mature hedgerows and treelines providing contiguous landscape connectivity for commuting and foraging bat species. The wider landscape is characterised largely by agricultural land-uses.

3.1 DESKTOP REVIEW

3.1.1 Sites of International and National Importance

Special Areas of Conservation (SAC) and Special Protection Areas for birds (SPA) are those sites that are deemed to be of European (i.e. international) importance. They form part of a network of sites to be designated across Europe in order to protect biodiversity within the community, known as Natura 2000 sites. At a national level, the basic unit of conservation is the Natural Heritage Area or proposed National Heritage Area (NHA/pNHA). NHAs are designated to protect habitats, flora, fauna and geological sites of national importance.

No international designated sites (SAC) containing Lesser Horseshoe Bat as a conservation interest are located within 15km of the proposed development. Additionally, no nationally designated sites (NHA/pNHA) listed for bat species were present. As such, no designated sites of international or national importance are considered further.

3.1.2 Bat Data Search

National Biodiversity Data Centre holds previous records of bat presence from within the 10km square (S00) in which the proposed site is located. These records are for the following four species:

- Daubenton's Bat (*Myotis daubentonii*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Leisler's Bat (*Nyctalus leisleri*)

No bat records exist of any species within 2km of the proposed site (S00L).

The overall bat suitability index value (34.56) according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011) suggests the landscape in which the proposed site is located is of moderate-high suitability for bats in general. Species specific scores are provided in **Table 3.1**. The Annex II species Lesser Horseshoe Bat is assigned a score of '8' due to the presence of suitable habitat features despite being located significantly outside of their known range.

Table 3.1 - Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011).

Common name	Scientific name	Suitability index
All bats		*34.56*
Soprano pipistrelle	*Pipistrellus pygmaeus*	38
Brown long-eared bat	*Plecotus auritus*	51
Common pipistrelle	*Pipistrellus pipistrellus*	47
Lesser horseshoe bat	*Rhinolophus hipposideros*	8
Leisler's bat	*Nyctalus leisleri*	43
Whiskered bat	*Myotis mystacinus*	30
Daubenton's bat	*Myotis daubentonii*	28
Nathusius pipistrelle	*Pipistrellus nauthusii*	10
Natterer's bat	*Myotis nattererii*	56

Source: https://maps.biodiversityireland.ie/Map. Accessed 06/11/2024.

3.2 VISUAL ROOST SURVEY

The suitability of structures on site was assessed for roosting bats following Collins (2023) (see **Table 2.1**). The proposed works involves renovation to the derelict cottage and associated outbuildings (see **Figure 1**).

The derelict cottage consists of a single storey stonework structure which has since been rendered in cement (see **Plate 3.2.1**), in addition to a stonework extension adjoining the western gable (see **Plate 3.2.3**). Artificial slates cover the original cottage and appeared well-sealed alongside associated lead flashing, with no obvious gaps or crevices present. Large natural slates cover the stonework extension and are lifting in places. Multiple open windows provide clear access/egress points for bat species (see **Plate 3.2.2** and **3.2.3**). The original cottage and stonework extension appear structurally compromised in places, exhibiting bulging walls and stonework which has been further exacerbated by recent groundworks. These structural defects provide additional roosting suitability in the form of stonework crevices for roosting bats.

Plate 3.2.1 View of front/southern aspect of former residence.

Plate 3.2.2 View of rear/northern aspect of the former residence, with main egress point for the Brown Long-eared Bat maternity colony in the form of an open window (red arrow).

Plate 3.2.3 View of the western aspect of the former residence, with Common Pipistrelle roosting space identified above window lintel (red arrow).

Interior assessment of the derelict cottage revealed a maternity colony of Brown Long-eared Bat beginning to form on 8th March 2024 on the eastern gable apex underneath the bitumen felt (see **Plate 3.2.4**) with approximately 10 individuals present.

A number of roosting locations were utilised by the Brown Long-eared Bat maternity colony throughout the active bat season, with a total of four discrete locations identified between March and November 2024. Roosting locations were mostly confined to the timber roof apex, both above and below the bitumen felt underlay.

A small number of Brown Long-eared Bat were identified (approximately 6) within the folds of bitumen felt above the former kitchen on 1st November 2024. The weather was noted to be unseasonably warm at the time of this survey. The cottage may be used to some extent for hibernation due to the variety of microclimates available to bat species.
The interior of the structure comprises a series of internally connected rooms between the original cottage and stonework extension. A suspended ceiling formerly present housed a concealed attic space which is now exposed (see **Appendix B** for complete internal layout). Bat droppings and occasional feeding remains were observed throughout the interior spaces. The original cottage appears to have been reroofed in recent decades, with the current roof overlaying a set of older timber structures as evident within the former kitchen (see **Plate 3.2.6**).

Three dead bats were identified within the bathroom, two in the bathtub and one in the sink. Due to the advanced state of decomposition these could not be attributed to any one species.

Plate 3.2.4 Interior view of parlour with original Brown Long-eared Bat roosting location highlighted (red arrow).

Plate 3.2.5 Brown Long-eared Bat maternity colony location identified on 8th March 2024 having moved to bedroom apex at the eastern gable.
(Photo by C. Breslin, NPWS Licence Ref. DER/BAT 2024-09; 008/2024).

Plate 3.2.6 Interior view of old kitchen, with roosting space on 1st November 2024 at apex (red arrow). Note the current roof overlaying the previous, older roofing timbers.

Plate 3.2.7 Brown Long-eared Bat roosting space identified on 1st November 2024 in old kitchen apex.
(Photo by C. Breslin, NPWS Licence Ref. DER/BAT 2024-09; 008/2024).

A series of outbuildings are associated with the former residence and are largely in advanced states of dereliction (See **Plate 3.2.8**). These structures consist of corrugated metal roofing and timber supports atop stonework walls, of which a portion of the roof is missing and was damaged by treefall during summer 2024. The interior is largely exposed to the elements, with considerable light, water and wind ingress. Additional small stonework ruins adjoin these outbuildings but are largely rubble and present no suitability for roosting bats. No evidence of roosting bats was identified within the outbuildings and stonework ruins, although the likelihood of periodic night roosting cannot be entirely excluded.

Plate 3.2.8 Outbuildings located immediately south of the former residence.

Plate 3.2.9 Interior view of the outbuildings associated with the former residence.

Based on available information, the former residence exhibits 'high' suitability for roosting bats, with the associated outbuildings presenting 'negligible' suitability following Collins (2023).

3.3 EMERGENCE SURVEYS

An emergence survey was conducted by Colm Breslin on 2nd July 2024 during suitable weather conditions, aided by the use of ultrasonic detectors and three thermal imaging cameras (night vision aids).

The emergence survey was characterised by generally low levels of overall bat activity within the locality, with an early peak in activity between 20-60 minutes after sunset which then tapered off quickly. Limited early night activity was composed primarily of Common Pipistrelle which was first observed approximately 15 minutes after sunset commuting in an easterly direction from offsite and is presumed to be roosting within the locality of the proposed site. Soprano Pipistrelle and Leisler's Bat was recorded to a lesser degree during the course of the survey.

Brown Long-eared Bats exited only through the rear open window (see **Plate 2.2** and **Plate 3.2.2**) which was sheltered by mature hedgerow habitat. Post-emergence activity of this species appeared mostly to the north of the house, with individuals quickly commuting offsite along boundary hedgerows. Review of thermal imagery and echolocation data revealed approximately 21 Brown Long-eared Bats exiting the former residence. A single Common Pipistrelle was recorded emerging from above the western gable lintel (see **Plate 2.3**) and commuting in a westerly direction. Approximately 75 minutes after sunset, Brown Long-eared Bat were recorded re-entering through the same window.

Interior inspections of the former residence was carried out concurrently with the emergence survey in order to detect evidence of pre-emergence activity of bat species. Brown Long-eared Bat were observed conducting pre-emergence warm-up flights, periodically re-entering the colony roosting location at the time above the bitumen felt centrally within the structure. Audible and constant scratching and chattering was heard above the bitumen felt from the colony roosting location. Observed females did not appear to be heavily pregnant and appeared to have recently birthed pups.

3.4 SUMMARY OF RESULTS

The former residence has been confirmed as a maternity roost of approximately 21 adult Brown Long-eared Bats, with the main colony roosting location identified to have moved in response to disturbance within the locality. A smaller number of individuals were noted roosting in an alternative location on 1st November 2024, with the possibility of winter roosting/hibernation occurring within the structure also. A single Common Pipistrelle was observed exiting from above the western gable window lintel and likely represents a non-significant roost utilised on a transient basis. Non-significant roosting by other species, in particular *Pipistrellus* spp. cannot be entirely discounted due to the variety of roosting spaces available.

While no evidence of roosting was identified within the outbuildings, occasional night roosting cannot entirely be discounted.

Overall, the derelict cottage is considered **Local Value (Higher Importance)** following NRA (2009) due to the presence of maternity roosting by Brown Long-eared Bat.

4 Potential Impacts

The below sections discuss the potential effects of the proposed development on bats in both the construction and operational phases in the absence of mitigation.

4.1 DO-NOTHING SCENARIO

If the proposed development does not proceed, the 'do nothing' scenario is that the existing environment within the site boundary is likely to remain as described herein in the short term at least. In the medium and long terms, in the absence of intervention, the former residence and outbuildings are likely to fall into dereliction, ultimately becoming unsuitable for roosting bats. It was noted at the time of surveys that exterior walls have begun to bulge in places with a portion of stonework coming loose also (see **Section 3.2**).

4.2 LOSS OF ROOSTING SITE

The construction phase of the proposed renovation will see the permanent loss of the identified Brown Long-eared Bat maternity colony and non-significant roost of Common Pipistrelle. Construction works are likely to cause localised disturbance to other roosting bat species present in or close to the development footprint. Following Marnell et al. (2022) the significance of the identified roost within the former residence and scale of impact are considered high in the absence of mitigation.

4.3 LOSS OF VEGETATION

Any proposed vegetation removal will impact foraging and commuting bats that use hedgerows and other similar features. Hedgerows and treelines maintain landscape connectivity and provide commuting bats with waypoints and corridors through which they commute to and from roosts/foraging areas. The loss of these features will cause a reduction in landscape connectivity in the immediate vicinity of the proposed site. Additionally, vegetation provides a screening effect for artificial lighting disturbance in a local context.

The use of heavy machinery in the root zone of trees can cause damage of the mature trees within the vicinity of the former residence, resulting in increased tree morbidity and mortality. Equally, the use of machinery in proximity to trees can result in accidental damage to the trunk and branches of trees. In the medium and long terms this could result in the death of trees which provide bat roosting opportunities, alongside screening disturbance effects of artificial lighting.

4.4 LIGHTING

Illumination surrounding a bat roost during the construction phase can cause disturbance (Downs et al., 2003). Light falling on a roost access point will at least delay bats from emerging and this shortens the amount of time available to them for foraging (Boldogh et al., 2007). As the main peak of nocturnal insect abundance often occurs around dusk, a delay in emergence can mean this vital time for feeding is missed. Additionally, there is evidence that Brown Long-eared Bat roosts can be abandoned completely when entrances are illuminated (Roche et al., 2014).

Inappropriate or excessive illumination of treelines or woodland areas at night can cause disturbance to roosting, commuting and foraging bats. Artificial lighting is thought to increase

the chances of bats being predated upon by avian predators (e.g. owls), and therefore bats may modify their behaviour to avoid illuminated areas.

The overall effect on bats at the proposed development, prior to consideration of mitigation measures, is considered to be a **short term, localised, significant, negative effect** and is entirely reversible following completion of works (following EPA, 2022).

5 Avoidance and Mitigation Measures

A mitigate-by-design approach was adopted in the design of the proposed development and O'Donnell Environmental Ecologists collaborated with the Client and NPWS Ranger Éinne Ó Chathasaigh to incorporate measures for bats in the emerging design. While only significant roosting by Brown Long-eared Bat was identified within the former residence, provision has been made for other crevice-dwelling bat species including Common Pipistrelle.

A replacement maternity roost is proposed as continued use of the existing cottage by the Brown Long-eared Bat colony is not considered practical in this instance. This replacement roost will be constructed in the winter of 2024/2025. The replacement roost will be complete within April 2025, in advance of the 2025 maternity period. Out of necessity, refurbishment works will take place during the winter period concurrently with the construction of the replacement roost, such that works will be sufficiently advanced to dissuade Brown Long-eared Bat from returning to the cottage. As outlined above, some roosting is likely to occur outside of the maternity period and bat boxes are proposed as a temporary measures to accommodate this non-maternity roosting. These measures are discussed in greater detail below.

Bats and their roosts are protected by legalisation, and the proposed works may only proceed following the grant of a derogation license issued under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations (2011). Notwithstanding any conditions of that license, should it be granted, the following measures will be implemented to minimise risks to bats:

5.1 REPLACEMENT MATERNITY ROOST ('BAT BARN')

The derelict cottage has been identified as a Brown Long-eared Bat maternity roost and appear to utilise the structure in its entirety. The current renovation design is not considered feasible to accommodate bats post-works. Therefore, a bespoke free-standing timber structure ('bat barn') is proposed to be constructed in advance of the maternity season and will provide a permanent alternative maternity roosting location for returning Brown Long-eared Bat. The design philosophy followed best-practice guidance and optimal roost variables chosen by Brown Long-eared Bat where feasible (Reason and Wray, 2023; Moussy, 2011; Entwistle et al., 1997).

The proposed location (see **Figure 1; Appendix A; Plate 5.1**) has been chosen with cognisance to the operational phase off the proposed development and landscape variables outlined by Entwistle et al. (1997). Consideration was also given to habitat connectivity to the existing roosting space within the derelict cottage. The alternative maternity roost location has been sited within an undisturbed location of the site and is surrounded on three aspects with vegetation in the form of hedgerows and standing deadwood. A suitable buffer in the form of hedgerow exists between the proposed location and the derelict cottage such that the likelihood of noise and light impacts arising from construction works and operational phase are considered negligible. Mature hedgerows bordering the site provide clear connectivity between the existing roosting location and the proposed alternative location. The location will be south-facing and sited at a suitable distance from hedgerows to reduce scrub encroachment. Scrub will be cleared each winter in a 2-metre radius surrounding the bespoke roost, and all flyways associated with access/egress points kept open.

Plate 5.1 - View looking north of the proposed location of bat barn. Note the vegetation buffering the northern, eastern and southern aspects. The derelict cottage/works area is located behind the eastern vegetation buffer.

The bat barn will measure approximately 3x4 metres in size, walls 1.5 metres high and pitch roof 1.5 metres at the apex, with the overall structure held 0.5 metres off the ground (see **Appendix A** for full design information). The bat barn will be composed entirely of bat-safe timber. The walls will be double skinned timber sheets with breathable membrane between to reduce draughts. The exterior walls will be finished with protective rough timber shiplap. The roof will be composed of natural slate harvested from the derelict cottage (or similar) with traditional bitumen felt (1F) underlay.

The dimensions of the structure will provide approximately 27m^3 of internal volume, within the variable ranges outlined by Entwistle et al. (1997). The internal layout of the bat barn will be divided into two main compartments (attic and lower floor), which will in turn be further subdivided as necessary to create a suitable variety of microclimates alongside sufficient space for pre-emergence flight. Rough untreated timber will be utilised for all interior structural components (trusses, battens etc.). The roof apex of the bat barn will mimic that already found to be used by Brown Long-eared Bat within the derelict cottage. A layer of polythene may be rolled along the floor of the bat compartment to catch bat droppings/urine.

Access/egress for Brown Long-eared Bat will be provided through dedicated predator-proof gaps supplied in the shiplap and natural slate in order to provide a variety of safe access/egress points for Brown Long-eared Bat (see **Plate 5.2** for example). A hatch on the lower floor of the bat compartment will be provided to facilitate access for bat-licensed surveyors to monitor the population within the roost.

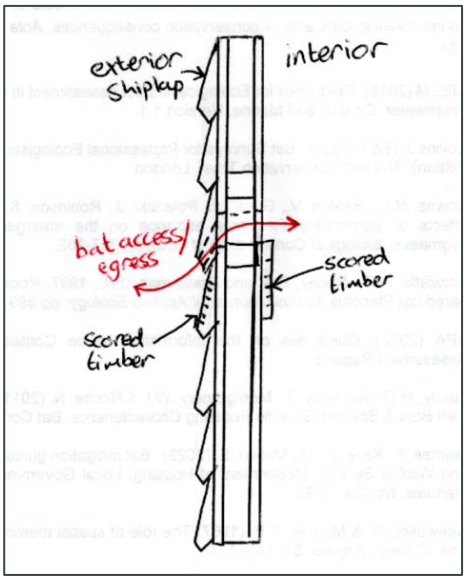

Plate 5.2 – Example sketch of suitable access/egress point within the walls of the bat barn for Brown Long-eared Bat.

The use of bat-safe construction materials will only be used in the construction of the alternative roost. Any timbers must be pressure treated offsite. Onsite application of wood preservative should be avoided, and if necessary, only products certified to be 'bat safe[1]' will be used (see **Appendix C**). The bat-licensed Ecologist will be consulted in relation to any onsite treatment of timber, and details of treatments used will be recorded and included in a post-construction compliance report which will be issued to NPWS.

The bat-licensed Ecologist will carry out a final inspection to confirm that the alternative maternity roost has been provided as outlined herein. The report will confirm that the dedicated roost is appropriately constructed.

5.2 ALTERNATIVE (NON-MATERNITY) ROOSTING LOCATIONS

Prior to commencement of renovation works on the former residence, the following bat boxes will be erected on surrounding mature trees in suitably undisturbed locations proximal to the former residence:

- One Schwegler Hibernation Bat Box 1FW
- One Schwegler Bat Box 2F

Bat boxes, in particular the 'Schwegler Bat Hibernation Box 1FW', will provide an appropriate short-term mitigation measure for any crevice-dwelling bats encountered during winter demolition works carried out under supervision of a bat-licensed Ecologist (discussed in **Section 5.1.3** below). The selection of bat box locations will be decided with cognisance of the following:

- Bat boxes will be installed at a minimum height of 3.5 meters above ground level, and in locations which are inaccessible to unaided climbing (to minimise risk of vandalism).
- Locations will be chosen which are not vulnerable to artificial light or noise pollution.

[1] https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts

- Boxes will be installed so that they have southern or westerly aspects and preferably in locations where they will receive some direct sunlight.

These bat boxes will be left in-situ post-works and are intended to be a slight enhancement post-works as a result of the proposed project.

5.3 TIMING OF WORKS

The nature of the proposed works (lime rendering, reroofing etc.) necessitate timing during sustained periods of good weather between spring and autumn. Renovation works are being carried out privately by the Client, with restrictions on resources necessitating longer construction timeframes. The duration of these works would result in sustained and significant negative effects on the re-forming Brown Long-eared Bat maternity colony in the absence of mitigation.

Given the above construction time constraints and that the primary conservation priority in this instance is the status of the Brown Long-eared Bat maternity colony, avoidance of winter work is impossible in this instance. The overriding priority is to dissuade returning bats from using the former residence prior to the maternity colony re-forming. The most suitable approach is considered to be the commencement of demolition works (roof stripping etc.) during the winter months under the supervision of a bat-licenced Ecologist and the sufficient advancement of works before the start of April such that any Brown Long-eared Bats would be dissuaded to return for the coming maternity season. This approach follows guidance outlined by Marnell et al. (2022). This timeframe is considered sufficient as the formation of the colony was first observed in early April 2024.

5.4 DEMOLITION SUPERVISION

A bat licensed Ecologist will be engaged to carry out pre-construction surveys and to advise in relation to the exclusion of bats in advance of works.

In order to safeguard against the possibility of encountering hibernating bats during winter demolitions, repeat detailed daytime inspections will be carried out by a bat licensed Ecologist in advance of works in order to confirm that the understanding of the importance of the site to bats as outlined in the current report remains valid. Dependant on the results of that future survey, additional measures may be required (e.g. winter roosting has been identified in the interim). The following specific features within the former residence will be inspected prior to any works:

- Inspection of the crevices between the bitumen felt underlay and slate where maternity roosting by Brown Long-eared Bat was identified, alongside all other aspects of the bitumen felt.
- Inspection of crevices associated with the lintels to be replaced/repaired where non-significant roosting by Common Pipistrelle was identified.
- Any external/internal stonework crevices will be inspected with an endoscope prior to any cleaning/re-pointing works and installation of lime render.
- Inspection of crevices associated with the timber roofing structure.

A bat-licensed Ecologist will be engaged prior to the commencement of demolition works. The removal of existing slates and timber roofing will be carried out with hand tools to minimise the potential impact to any bats roosting within. The extent of hand-tool removal necessary will be assessed by a bat licensed ecologist on the day of works. Additionally, any works involving the

structural stonework will be inspected by a bat-licensed Ecologist prior to works commencing. Any potential bats encountered during works will be moved immediately by a bat-licensed Ecologist to the neighbouring 'Schwegler Hibernation Bat Box 1FW' as discussed in **Section 5.1.1**.

5.5 LIGHTING

In order to avoid potential impacts of lighting on roosting/foraging bats, construction works will generally take place during daylight hours. Lighting will be utilised as necessary following consultation with a bat-licensed ecologist to dissuade bats from re-entering the cottage during works until such time that works are sufficiently advanced and bats can be permanently excluded. Any night lighting shall be directed away from sensitive ecological features such as hedgerows and only illuminate the area. These measures are considered sufficient to prevent any adverse impacts on roosting, commuting and foraging bats within the locality.

Significant external lighting is not proposed for this residential development following the completion of works and in any event, no lighting will be placed within proximity to the discussed bat boxes and bat barn.

5.6 POST-CONSTRUCTION MONITORING

Repeat surveys will be carried out on one occasion during the maternity season in each year for two years following the completion of works to confirm the successful implementation of the proposed mitigation measures and to monitor the status of the existing population. Environmental data (temperature, humidity etc.) will be recorded within the bat barn to demonstrate that suitable conditions have been achieved.

6 Residual Impacts and Conclusion

A comprehensive survey effort has been carried out and the proposed site is considered to be of **Local Importance (Higher Value)** from an ecological perspective based on the presence of Brown Long-eared Bat maternity colony (following NRA, 2009).

There will be a short-term, slight negative effect on roosting bats at a local level during the construction phase as a result of disturbance and the permanent loss of roosting location. With the implementation of the mitigation measures outlined in **Section 5** above, the overall ecological effect of the proposed development (relative to the 'do-nothing' scenario) is considered to be a **neutral** effect (following EPA, 2022).

7 Derogation Licence Application

Bat roosts are protected whether they are occupied or not, and it is an offence to disturb a bat roost. A derogation license issued under Regulation 54 (2) (c) of the Birds and Natural Habitats Regulations (2011) is required to facilitate the proposed works.

A derogation license is requested for the proposed works, with the following details:

- Applicant: **Gobnait Ní Néill** and **Derek Riordan.**
- Supervised by: **Colm Breslin** of **O'Donnell Environmental Ltd, Lawley House, Monahan Road, Cork City, Co. Cork. T12 N6PY.**
- Species: **Brown Long-eared Bat** *Plecotus auritus***, Common Pipistrelle** *Pipistrellus pipistrellus***, Soprano Pipistrelle** *Pipistrellus pygmaeus***.**
- Activity: **Moneygorm Residential Renovation, Co. Waterford, P51VCH9.**
- Timeline: **2024/2025**

Table 4.1 provides responses to four key issues which will be considered during the derogation license decision making process.

Table 4.1 - Derogation License Checklist

Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations. Gobnait Ní Néill and Derek Riordan proposed to renovate the derelict cottage and outbuildings located in Moneygorm, Co. Waterford. The derogation license is sought to facilitate these works which are required for social reasons to continue the use of the structure as residential and help address the national housing crisis. Alternative solutions were considered, and none are available in this instance. The building is an advance state of dilapidation and renovation is required to preserve the structure. Renovation in a way that does not disturb the bat roosting locations is not possible. The structure is currently in a state of disrepair, with water, light and wind ingress noted at multiple points, primarily in the form of open and broken windows. The residence appears structurally compromised in places, with some exterior walls beginning to bulge and stonework coming loose. Without management, it is likely that the structure will eventually fall into dereliction and be lost as a roosting space for bat species in the short-term (1-7 years following EPA, 2022). Renovation works will require the removal and replacement of the existing roof (slates, timber etc.) and weather-proofing of the lower storeys to be made habitable again and as such no suitable alternative is available for works to proceed.	☒
Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.	☒

An appropriate level of survey was carried out which complies with current best practice standards, including recent recommendations regarding the use of 'night vision aids'. Based on best available information, the former residence in its entirety is utilised by a maternity colony of Brown Long-eared Bat approximating 21 adult individuals. Roosting was also identified by a single Common Pipistrelle above the western gable window lintel and is likely used on a transient basis. While not confirmed at the time of surveys, roosting by other *Pipistrellus* spp. such as Soprano Pipistrelle cannot entirely be discounted and thus is included within this licence application also and provision has been made for these species. Roosting by a small number of Brown Long-eared Bats was noted in early November and thus winter roosting cannot entirely be discounted within this structure. The associated outbuildings are in an advanced state of disrepair with no roosting identified, although night roosting cannot entirely be discounted. Avoidance is the primary measure being employed to avoid/reduce disturbance to roosting bats. As the former residence is utilised by a maternity colony of Brown Long-eared Bat, in combination with timeframe restrictions inherent in the design of the project, winter work is deemed unavoidable and the most optimal methodology for avoiding potential negative effects on bats. Detailed daytime pre-construction surveys will be carried out in advance of works to identify any potential roosting bats. Demolition works will be carried out over the winter months under supervision of a bat-licensed ecologist, utilising hand tools in areas with suitability for hosting roosting bats. A bespoke alterative maternity roost will be constructed during the winter months in advance of the maternity season in a suitably undisturbed area of the site that is well-connected and not subject to potential future disturbance in order to facilitate the returning Brown Long-eared Bat maternity colony. Permanent access and post-construction monitoring will be carried out for two years following works. Alternative roosting locations will be provided in advance of works (bat boxes) on nearby undisturbed mature trees. Should bats be encountered during demolition works, the supervising bat-licenced Ecologist will immediately move these individuals to nearby bat boxes installed in advance of works. It is considered that the proposal will not be detrimental to the maintenance of the bat populations at a favourable conservation status in their natural range and that the proposal will not have a detrimental effect on the local bat populations.	
Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere. Full detail on proposed mitigation measures are outlined above in **Section 5**. Below is a summary of these measures: • A replacement bespoke bat roost ('bat barn') will be provided in a suitably undisturbed location within the site that is well-connected to the existing roost and not subject to any potential future disturbance. O'Donnell Environmental have engaged with the Client throughout the design process and appropriate information has been included in the project design. Access will be provided for post-construction monitoring of the bat barn and bat boxes. • Alternative non-maternity roosting locations will be provided prior to the commencement of demolition works. A minimum of two bat boxes will be installed on nearby undisturbed mature trees and will be retained following the	☒

completion of works as a slight enhancement measure. A specifically designed hibernation box will be utilised to cater for any wintering bats identified during demolition works. • Demolition works will be timed outside the maternity season, including the winter months, such that works will be sufficiently advanced to dissuade the returning maternity colony of Brown Long-eared Bat. • A bat-licenced ecologist will be onsite conducting survey prior to works, and will oversee demolition works, ensuring compliance with the proposed mitigation measures. • Repeat surveys and environmental monitoring will take place during the maternity season for two years post-construction to ensure that the proposed mitigation measures were successfully implemented.	
As much information as possible to allow a decision to be made on this application. Full information is outlined in the current report.	☒

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Appendix A
Site Layout and Bat Barn Design

Appendix B
Internal Cottage Layout

Appendix C
Bat Safe Timber Treatment Products

Marketing company	Product name	Type	User	Active ingredients
Akzo Nobel Coatings Ltd	Cuprinol Trade Decorative Preserver (BP)	S	A	IPBC, Tebuconazole
Akzo Nobel Coatings Ltd	Cuprinol Trade Quick Drying Wood Preserver Clear (BP)	W	A	Propiconazole, IPBC
Akzo Nobel Coatings Ltd	Dulux Trade Weathershield Naked Wood Basecoat (BP)	W	A	Propiconazole, IPBC
Akzo Nobel Coatings Ltd	Dulux Trade Weathershield Preservative Primer + (BP)	W	A	Propiconazole, IPBC
Assured Products Ltd	Spear & Jackson Triple Action Wood Treatment	M	A	Propiconazole, IPBC, Permethrin
Assured Products Ltd	Spear & Jackson Woodworm Killer	M	A	Permethrin
Crown Paints	Sadolin Quick Dry Wood Preserver	W	A	Propiconazole, IPBC
Enviroquest GPT Ltd	Lignum Pro I62.5 (BPR)	Wc	P	Permethrin
Enviroquest GPT Ltd	Lignum Pro D156 (BPR)	Wc	P	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Universal Wood Preserver (BPR)	W	A	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Woodworm Killer (BPR)	W	A	Permethrin
Enviroquest GPT Ltd	Lignum Wood Preserver (BPR)	W	A	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Pro Gel(BPR)	Pa	P	Propiconazole, IPBC, Permethrin
Larsen Building Products	Larsen Construction Timber Preserver	M	A	Propiconazole, IPBC, Permethrin
Larsen Building Products	Larsen Low Odour Woodworm Killer	M	A	Permethrin
Larsen Building Products	Larsen Low Odour Universal Wood Preservative	M	A	Propiconazole, IPBC, Permethrin
Morrells Woodfinishes Ltd	Omnia Preserve	W	A	Propiconazole, IPBC

Permagard Products Ltd	Permagard Woodworm Killer (BPR)	W	A	Permethrin
Permagard Products Ltd	Permagard Universal Wood Treatment (BPR)	W	A	Propiconazole, IPBC, Permethrin
PPG Agritectural Coatings UK Ltd	Johnstone's Trade Woodworks All Purpose Preserver	S	A	Propiconazole, IPBC, Permethrin
PPG Agritectural Coatings UK Ltd	Johnstone's Woodcare Wood Preserver	M	A	Propiconazole, IPBC, Permethrin
PPG Coatings Danmark A/S	Bondex Preserve II	W	A	Propiconazole, IPBC, Permethrin
Premier Q Coatings Ltd	Premier Q Woodworm Killer (BPR)	S	A	Permethrin
Premier Q Coatings Ltd	Premier Q Triple Action Wood Treatment (BPR)	S	A	Propiconazole, IPBC, Permethrin
Protim Solignum Ltd trading as Koppers	Endcoat Wood Preservative	S	A	Propiconazole
Rentokil Initial	Deadline Woodworm Treatment	W	P	Permethrin, IBPC, Tebucanazole, Propiconazole
Rentokil Initial	Woodworm Treatment Solution	W	P	Permethrin, IBPC, Tebucanazole, Propiconazole
Rentokil Initial	Woodworm Treatment Fluid	W	A	Permethrin, IBPC, Tebucanazole, Propiconazole
Rustins Ltd	Rustins Advanced Wood Preserver (BPR)	M	A	Propiconazole, IPBC, Permethrin
Safeguard Europe Ltd	Soluguard Woodworm Treatment (BPR)	M	A	Propiconazole, IPBC, Permethrin
Safeguard Europe Ltd	Soluguard Woodworm and Rot Treatment (BPR)	M	A	Propiconazole, IPBC, Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Total Clear Wood Preserver (MP)	S	A	Propiconazole, IPBC, Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Woodworm Killer (MP)	S	A	Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Multi-Purpose Woodworm Treatment (MP)	S	A	Propiconazole, IPBC, Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Multi-Purpose Woodworm Treatment (LC)	S	A	Propiconazole, IPBC, Permethrin

Sovereign Chemicals Ltd	Sovaq Woodworm Killer (BPR)	Mc	P	Permethrin
Sovereign Chemicals Ltd	Sovereign Boron Timber Rod	R	P	Disodium octaborate
Sovereign Chemicals Ltd	Deepkill Timber Preservative Cream	Pa	A	Propiconazole, IPBC, Permethrin
Sovereign Chemicals Ltd	Sovaq Dual Purpose Timber Treatment	Mc	P	Propiconazole, IPBC, Permethrin
Sovereign Chemicals Ltd	Sovereign Timber Preservative	S	A	Propiconazole, IPBC
STV International Ltd	Defenders Triple-Action Timber Protector	M	A	Propiconazole, IPBC, Permethrin
STV International Ltd	Zero In Woodworm Destroyer	M	A	Permethrin
Troy UK	TWP 085	W	A	Propiconazole, IPBC
Troy UK	TWP 077	S	A	Propiconazole, IPBC
Wykamol Group Ltd	Microtech Dual C RTU (BPR)	M	A	Propiconazole, IPBC, Permethrin
Wykamol Group Ltd	Microtech Woodworm RTU (BPR)	M	A	Permethrin
Wykamol Group Ltd	Microtech Dual P RTU (BPR)	M	A	Propiconazole, IPBC, Permethrin

Type of product:
A - aerosol
Mc - micro emulsion concentrate, to be diluted with water to form a micro emulsion
Pa - bodied paste
R - solid rod, for insertion into pre-drilled hole
S - solvent-based
W - aqueous solution, ready for use
Wc - aqueous solution concentrate, to be diluted with water
Type of user:
P - professional - only people required to use pesticides as part of their work and who have received appropriate information, instruction and training can use the product
A - amateur - the general public can use the product
IPBC is an abbreviation for 3-iodo-2-propynyl n-butylcarbamate.
Use the HSE number to check product details in the COPR database.

Source: https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts

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