BIODIVERSE
CONSULTING

MARSDEN COTTAGE

BAT REPORT

FOR: AMIRUL ISLAM

REF: BIOC24-079 | V2.0

CLIENT	PROJECT	
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	Project code:	BioC24-079
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DOCUMENT CONTROL

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EXECUTIVE SUMMARY

Biodiverse Consulting Ltd. was commissioned in August 2024 to undertake an assessment of development proposals in relation to bats at Marsden Cottage, Lizard Lane, South Shields, NE34 7AD. The Site comprises a two-storey residential dwelling with a main access road to the front and a large, shared garden with trees to the rear and an additional out building. Both buildings are to be demolished with the main building redeveloped into another residential dwelling.

The table below presents a summary of the survey and assessment findings.

ECOLOGICAL CONSIDERATIONS FOR THE PROPOSALS			
	Key results	**Requirement for further survey?**	**Licence?**
External Preliminary Roost Assessment (PRA) for Main Building and Outbuilding	High suitability for roosting bats on the main building. The outbuilding has negligible suitability.	For the Main Building • Three dusk emergence surveys. • Two hibernation survey	N/A
Presence/likely absence surveys (dusk emergence)	The first survey in August 2024 identified four Pipistrelle sp. roosts, further surveys identified no roosts suggesting these are day roosts likely used periodically	No	Yes
Bat Hibernation Surveys	Two hibernation surveys (November – March) identified no evidence of hibernating bats.	No	No

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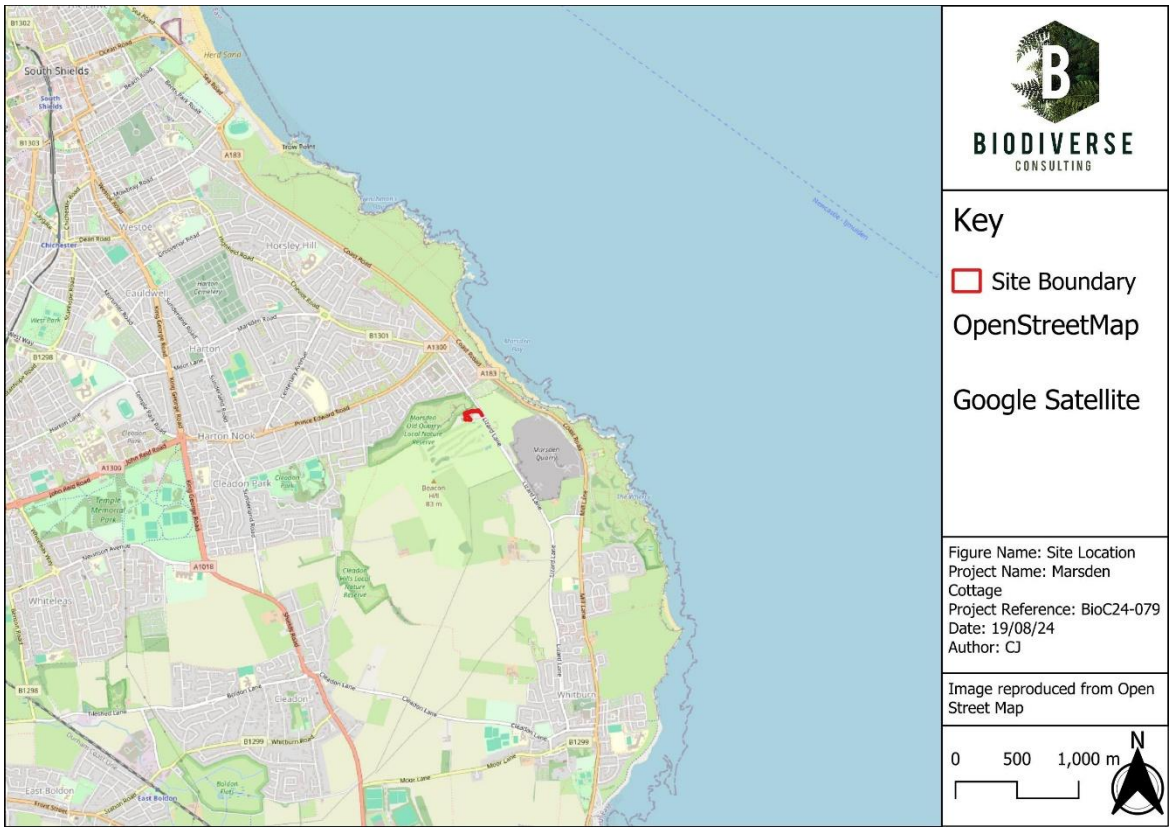
1 INTRODUCTION

1.1 SITE LOCATION & DESCRIPTION

The Site is located at Lizard Lane, South Shields, NE34 7AD at an approximate central grid reference of NZ 39744 64493. The Site comprises the main residential building, access road with a grass verge and trees, a large garden to the rear and a small outbuilding.

FIGURE 1: SITE LOCATION



1.2 REPORT OBJECTIVES

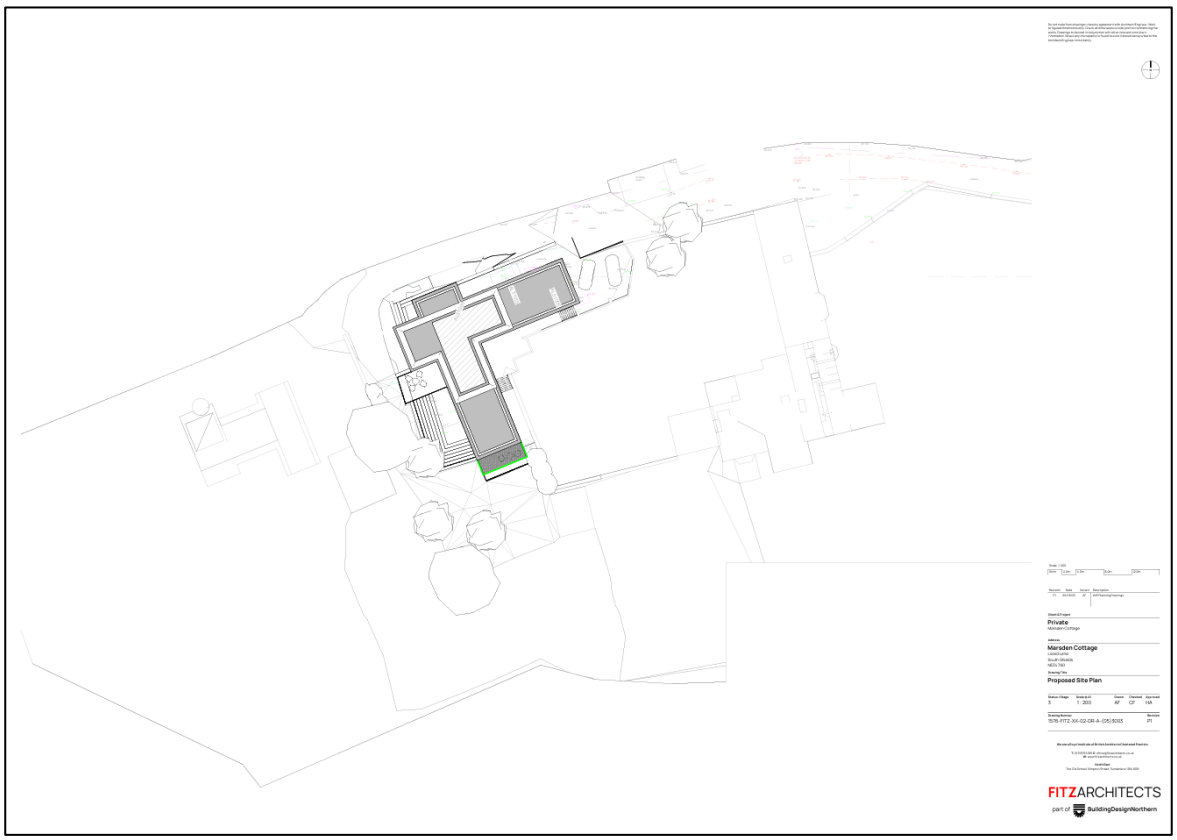
The objectives of this report are to:

- Present survey methods and results
- Assess the value of the Site for bats
- Identify any additional survey requirements in relation to bats
- Determine whether a Natural England European Protected Species Mitigation Licence is required

1.3 DEVELOPMENT PROPOSALS

The development proposal are understood to include the demolition of the existing buildings and the construction of a new residential dwelling based on plans at the production of this report (1576-FITZ-XX-02-DR-A-(05)3003_P1 - Proposed Site Plan)

FIGURE 2: PROPOSED SITE LAYOUT



2 METHODOLOGY

2.1 SURVEY AREA

The survey area comprised the 'Site' (Figure 3).

FIGURE 3: SURVEY AREA

2.2 DESK STUDY

A desk study was undertaken to assess the nature of the surrounding habitats and included:

- An assessment of aerial imagery and Ordnance Survey mapping within 1km of the site.
- A search of the MAGIC[1] website for designated sites and European Protected Species licensing for bats within 2km of the Site, and for statutory designated sites for bats.

2.3 FIELD SURVEY

Survey methodology followed Bat Conservation Trust (BCT) Guidelines 2023[2]. Table 1 details weather conditions on each survey occasion.

[1] Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)
[2] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th Edition. Bat Conservation Trust.

TABLE 1: SURVEY CONDITIONS

SURVEY	DATE	TEMP.	CLOUD	PRECIPITATION	WIND[3]
Daytime Bat Walkover (DBW) & External Preliminary Roost Assessment (PRA)	20/08/24	16°C	30%	None	3BF
Visit 1: Presence/likely absence survey (dusk emergence)	28/08/24	13°C	30%	None	2BF
Visit 2: Presence/likely absence survey (dusk emergence)	19/09/24	13°C	100%	None	1BF
Visit 3: Bat hibernation survey	18/11/24	1°C	20%	None	1BF
Visit 4: Bat hibernation survey	09/01/2025	-1°C	20%	None	2BF
Visit 5: Presence/likely absence survey (dusk emergence)	03/06/2025	11°C	50%	None	4BF

2.3.1 PRELIMINARY ROOST ASSESSMENT

Survey methods and assessment are based on the Bat Conservation Trust (BCT) Good Practice Guidelines[2]. A Ground Level Tree Assessment (GLTA) determined the value of trees and a Preliminary Roost Assessment (PRA) determined the value of structures to roosting bats and the need for further survey and/or mitigation.

A Daytime Bat Walkover (DBW) assessed habitats for bats to roost, commute, and forage both on Site and in the surrounding area. The aim is to determine the suitability of the Site for bats, to assess whether further bat surveys will be needed and how those surveys should be safety carried out.

The survey was conducted by Siobhan Bailey BSc (2024-11854-CL17-BAT), and Madeline Money BSc, both experienced ecologists from Biodiverse Consulting Ltd.

The following equipment was utilised during survey:

- Binoculars
- Clulite Clubman Deluxe torch
- Digital Camera

[3] Beaufort wind force scale (https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale)

2.3.2 PRESENCE/LIKELY ABSENCE (DUSK EMERGENCE) SURVEYS

Presence/likely absence surveys were completed following the PRA results. All surveys were undertaken in accordance with BCT Guidelines 2023, with the addition of Night Vision Aids (NVAs). See Table 1 for metadata and Table 2 for surveyor information.

TABLE 2: SURVEYOR INFORMATION

NAME	EQUIPMENT	RECORDINGS?	YEARS OF EXPERIENCE	LICENSE?
VISIT 1: DUSK EMERGENCE				
Madeline Money (Lead)	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	2	No
David Charlton	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	1	No
VISIT 2: DUSK EMERGENCE				
Jessica Vincent (Lead)	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	2	No
John Charlton	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	1	No
Lucy Rowell	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	<1	No
VISIT 3: DUSK EMERGENCE				
Madeline Money (Lead)	Anabat Scout, Nightfox Whisker Infrared Camera	Yes	3	No
Sarah Boundy	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	1	No
Francesca Oakley	Anabat Scout, Nightfox Whisker Infrared Camera	Yes	<1	No

NAME	EQUIPMENT	RECORDINGS?	YEARS OF EXPERIENCE	LICENSE?
VISIT 1: DUSK EMERGENCE				
Margarida Ventura	Echometer touch 2 pro + Tablet, Nightfox Whisker Infrared Camera	Yes	<1	No

2.3.3 BAT HIBERNATION SURVEYS

Two surveys were undertaken on the building identified as having suitability for hibernating bats in winter (November – March inclusive). A licenced ecologist carried out a close and systematic inspection of all cracks, crevices and voids using torches, mirrors and an endoscope (Matt Cook 2015-10167-CLS-CLS and 2015-10176-CLS-CLS).

2.3.4 NIGHT VISION AIDS

Nightfox Red Night Vision Goggles and Nightfox Whisker Night Vision Binoculars were used to record roosting or emerging bats with illumination using infra-red torches. Footage was assessed and analysed the following day.

2.4 DATA ANALYSIS

Following all surveys, bat calls are manually assessed and analysed, using Kaleidoscope Pro 5, enabling the full spectrum of the call to be assessed for data recorded with Echo Meters. Where possible bat calls are identified to species, referencing call parameters as detailed within Russ (2010)[4], Middleton *et al* (2014)[5] and Barataud (2015)[6].

Bats are identified to species level, where possible, though it is noted that there can be a significant overlap in call parameters in some species, particularly the Myotis genus. Myotis bat calls are assessed using a range of indicators, though due to their modulated calls, a number of external factors can impact the reliability. As such Myotis bats will often be identified as *Myotis sp*. where identification to species cannot be confirmed. The use of full spectrum detectors gives a greater success rate in identification. The relative abundance of bats is measured in "Bat Call Passes" where a recording of a bat call, commuting or foraging, from any bat on Site is classed as a single bat pass.

[4] Russ, J.M. (2012) British Bat Calls: A Guide to Species Identification.
[5] Middleton et al (2014) The Social Calls of the Bats of Britain and Ireland.
[6] Barataud, M. (2015). Acoustic ecology of European bats. Species identification and studies of their habitats and foraging behaviour

2.5 ASSESSMENT METHODOLOGY

Guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) is utilised to provide habitat valuations. The level of value of specific ecological receptors is assigned using a geographic frame of reference. For, example international value being most important (SACs, SPAs and pSPAs), then national (SSSIs), regional, county (LWS), district (LNR), local and lastly, within the immediate zone of influence of the Site only (low).

Assessment of the importance of the bat assemblage on site was bats have been undertaken in line with the methodology presented in Reason & Reay (2023)[7], which correlates with the geographic frame of reference. Within which they define the relative rarity of each species based on the known distribution[8] at the time and the value of the roost type, assuming that roosts such as feeding perches are of lower value that maternity roosts or sites that have a high level of fidelity.

2.6 LIMITATIONS

The surveyors conducting the PRA survey did not hold a Natural England Level 2 Bat Licence, therefore the Potential Roosting Features (PRFs) could not be inspected for evidence of bats. This is not considered to be a significant constraint on the findings of this report given that emergence surveys and hibernation surveys (the later by a surveyor holding a Level 2 Bat Licence) were completed in accordance with BCT Guidelines (2023).

There was no internal access into the property during the Preliminary Bat Roost Assessment. This is not considered a significant constraint as presence absence surveys were completed.

No surveyors held Natural England Bat Survey Licences. This is not considered a significant limitation given that all Biodiverse staff (lead surveyors) were suitably trained and with over 3 years' experience of bat surveys. Furthermore Siobhan Bailey and Madeline Money are members of Northumberland Bat Group and are working towards attaining a Level 2 survey licence. Siobhan has a Level 1 Roost Visitors Licence and is a bat carer.

[7] Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

[8] It should be noted that there are regular changes to our understanding of distribution as further studies are undertaken.

3 RESULTS

3.1 DESK STUDY

The desk study returned 24 records of bats within 2km of the Site. Records included common pipistrelle *Pipistrellus pipistrellus* and Noctule *Nyctalus noctula.* The closest record was a common pipistrelle near Lizard Lane c.608m south of the Site.

3.1.1 DESIGNATED SITES

A summary of statutory and non-statutory designated sites is provided in Table 2. In addition, the site is within a SSSI Impact Risk Zone (IRZ), however the development is not of a type that triggers consultation between the LPA and Natural England. A 2km search was carried out for statutory designated sites.

DESIGNATION	SITE NAME	REASON FOR DESIGNATION	DISTANCE FROM SITE
Statutory Designated Sites			
Special Area of Conservation (SAC)	Durham Coast	Vegetated sea cliffs on magnesian limestone exposures. These cliffs extend along the North Sea coast for over 20 km from South Shields southwards to Blackhall Rocks. Their vegetation is unique in the British Isles and consists of a complex mosaic of paramaritime, mesotrophic and calcicolous grasslands, tall-herb fen, seepage flushes and wind-pruned scrub.	340m
Special Protection Area	Northumbria Coast	Qualifying Features are Arctic Tern *Sterna paradisaea*, Little tern *Sternula albifrons*, Turnstone *Arenaria interpres* and Purple Sandpiper *Calidris maritima*.	853m
Ramsar	Northumbria Coast	Qualifying Features are Purple Sandpiper, Turnstone and Little Tern.	853m
Site of Special Scientific Interest	Durham Coast	Contains most of the paramaritime Magnesian limestone vegetation in the UK.	340m

DESIGNATION	SITE NAME	REASON FOR DESIGNATION	DISTANCE FROM SITE
		Supports nationally important numbers of wintering shore birds.	
Site of Special Scientific Interest	Harton Down Hill	Harton Down Hill is of importance for the Magnesian Limestone Grassland communities associated with the shallow soils and rock outcrops of this hill. Most northerly population of perennial flax *Linum anglicum*.	982m
Site of Special Scientific Interest	Cleadon Hill	Cleadon Hill is of interest for its Magnesian Limestone grassland communities associated with shallow soils, rock outcrops and old earthworks on the flanks of the hill. Most northerly record of the small air-breathing snail *Pyramidula rupestris*	1448m
Local Nature Reserve	Marsden Old Quarry	Magnesian limestone grassland, Lowland Meadows and pasture scrub.	24m
Local Nature Reserve	Harton Down Hill	Magnesian limestone grassland.	990m
Local Nature Reserve	Cleadon Hills	Magnesian limestone and wildflower community.	1448m
Non-Statutory Designated Sites			
Local Wildlife Site	Marsden Quarry	Magnesian limestone grassland with blue moor-grass *Seslaria caerulea.*	450m
Local Wildlife Site	Lizard Lane Cutting	Magnesian limestone grassland with bird's-foot trefoil, eyebright and fairy flax.	500m
Local Wildlife Site	Kitchener Road	Species-rich grassland.	1100m
Local Wildlife Site	The Leas	Complex mosaic of different grasslands. These include. • Neutral grassland	1400m

DESIGNATION	SITE NAME	REASON FOR DESIGNATION	DISTANCE FROM SITE
		• Species – rich Magnesian limestone grassland	
Local Wildlife Site	Whitburn Firing Range	The site is of national importance for golden plover and has significant assemblages of: • Lapwing • Redshank • Oystercatcher • Ringed plover	2000m
Local Wildlife Site	Whitburn Point	The site comprises priority habitats within the Durham Biodiversity Action plan: • Ponds • Lowlands meadows and pasture • Broadleaf woodland	1900m

3.1.2 EUROPEAN PROTECTED SPECIES LICENCING FOR BATS

There were no EPS licences returned from the desk study for bats within 2km of the Site.

3.1.3 LANDSCAPE CONTEXT

A review of aerial imagery and Ordnance Survey mapping shows that land use in the surrounding area comprised a residential area to the north of the Site, recreational golf course to the south and south-east. The northern Site boundary abuts the Marsden Old Quarry Local Nature Reserve (Table 3). The Site is within 2km of the Durham and Northumberland coastline SSSI/SPA.

The wider area mainly consists of agricultural fields divided by hedgerows, providing good connectivity to the Site for commuting bats. Marsden Quarry is approximately 400m south-east of the Site.

3.2 FIELD SURVEYS

3.2.1 PRELIMINARY BAT ROOST ASSESSMENT (PBRA)

One tree (T1) was assessed as Further Assessment Required (FAR) if removed/impacted.

T1 (location: NZ 39747 64465), a mature oak tree *Quercus sp.* approximately 15m in height with a DBH of 80cm contained dense ivy on trunk that could provide roosting opportunities for bats.

The PBRA of the buildings is detailed below in Table 5.

TABLE 5: PBRA RESULTS FOR BUILDINGS

BUILDING REFERENCE: BUILDING 1 (MAIN BUILDING)	
DESCRIPTION	Building 1 is a two – storey residential dwelling. The building comprises stone and mortar with shiplap cladding covering the majority of the upper two – thirds on the west, south and eastern aspect (Image 4). There are consistent gaps in the timber cladding leaving space between the stone wall and timber (Image 2). There is plastic guttering, soffits and roof capping are present around most of the building. The southern aspect of the building features a balcony constructed of wooden decking boards and timber posts. The roof is multi-level comprising concrete inter-locking tiles with plastic fascia's on south, east and western aspects. There is one area of flat felt roofing above dormer windows on the northern aspect.
PRF	Known roosts: • Timber cladding on the south – west aspect. (Image 1) • Timber cladding/guttering on the southern aspect. (Image 3) • Balcony on the southern aspect. (Image 3) There are further opportunities for roosting bats including areas of damaged cladding, a gap below a window on the second storey south-west aspect, there are gaps between the soffits and the wall.
SUITABILITY	Known roost

IMAGE 1

IMAGE 2

IMAGE 3

IMAGE 4

BUILDING REFERENCE: BUILDING 2 (OUT BUILDING)	
DESCRIPTION	Building 2 is a small, single – storey out building with shiplap timber cladding, flat felt roofing and plastic facias (Image 5). There was no internal access to the structure. There were extensive cobwebs covering gaps in the facias and the small gaps found in the cladding (image 6) indicating no recent use by bats.
PRF	None
SUITABILITY	Negligible

IMAGE 5

IMAGE 6

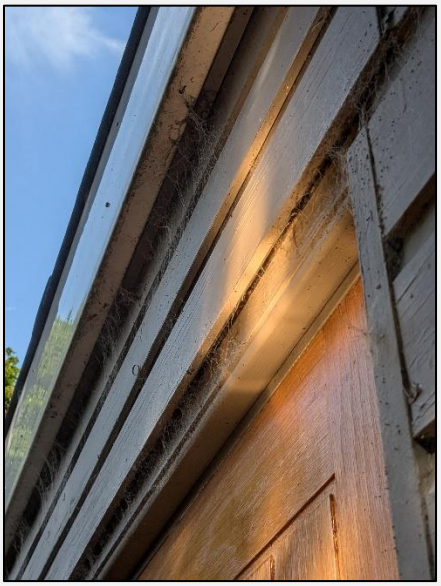
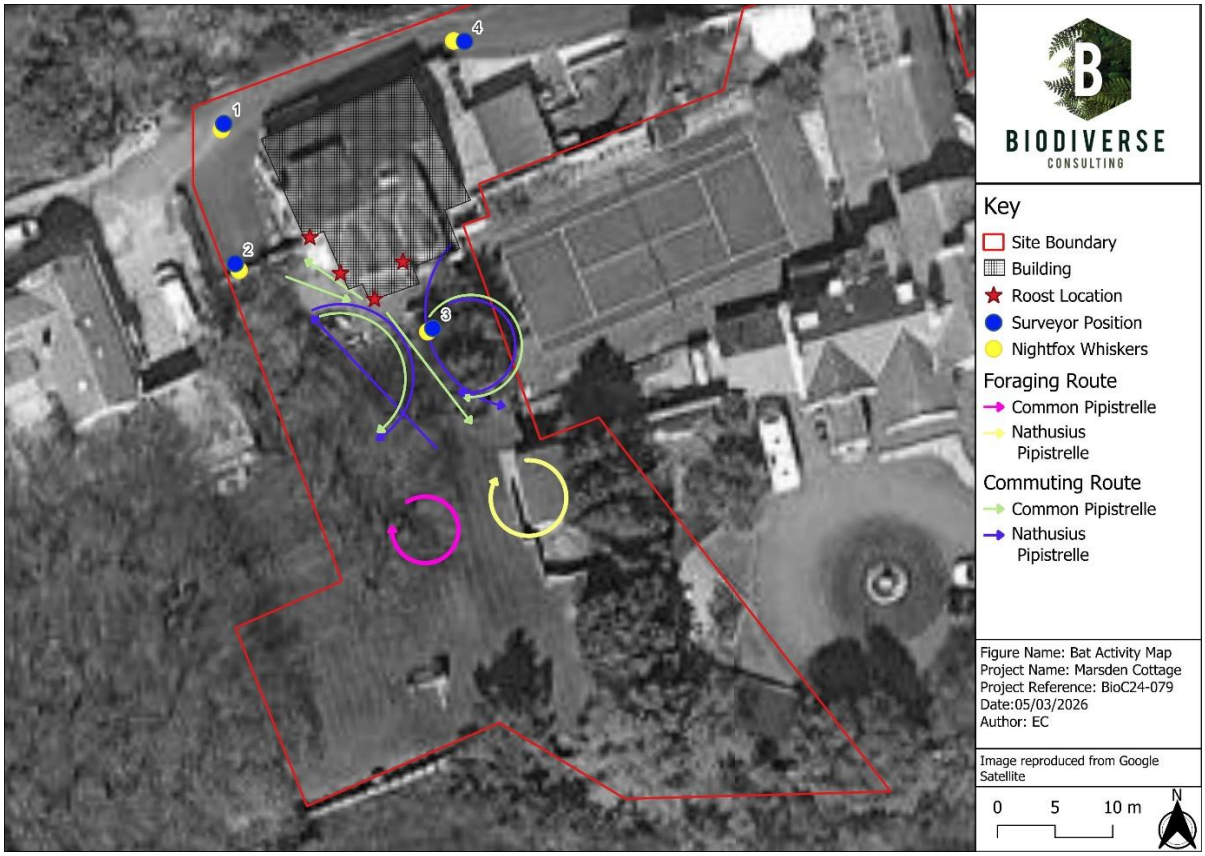


FIGURE 4: SUMMARY OF DUSK EMERGENCE SURVEYS



3.2.2 DUSK EMERGENCE SURVEYS

3.2.2.1 Visit 1: Dusk Emergence Survey: Main Building

Three species of bat were recorded during the survey: common pipistrelle, soprano pipistrelle *pipistrellus pygmaeus* and Nathusius' pipistrelle *pipistrellus nathusii.* The first bat identified was a common pipistrelle, heard not seen at 20:25pm, 33 minutes after sunset.

The majority of bat activity was attributed to common pipistrelle (see figure 5). No sightings were made, most activity was recorded by surveyor at position four, to the eastern aspect of the building where bats were commuting. No emergences were observed during the survey, however four day roosts were identified through infrared footage analysis from the camera located at position 3 located in the garden to the south eastern aspect of the building (Image 5), this was a position covered only by a camera and bat detector.

Two bats emerged; one from the fascia at 20:45 and another from under the balcony at 20:50 at a time when calls characteristic of common pipistrelle were recorded. Two of the emergences at 20:22 and 20:38 did not coincide with echolocating calls and therefore could not be identified.

The roosts are assessed as being day roosts of common pipistrelle and unidentified bats, likely opportunistic roosts used by males or non-breeding females.

3.2.2.2 Visit 2: Dusk Emergence Survey: Main Building

Four species of bat were recorded during the survey: common pipistrelle, Nathusius' pipistrelle, *Myotis spp*. and noctule. The first bat identified was a common pipistrelle, heard not seen 19:04, 7 minutes before sunset.

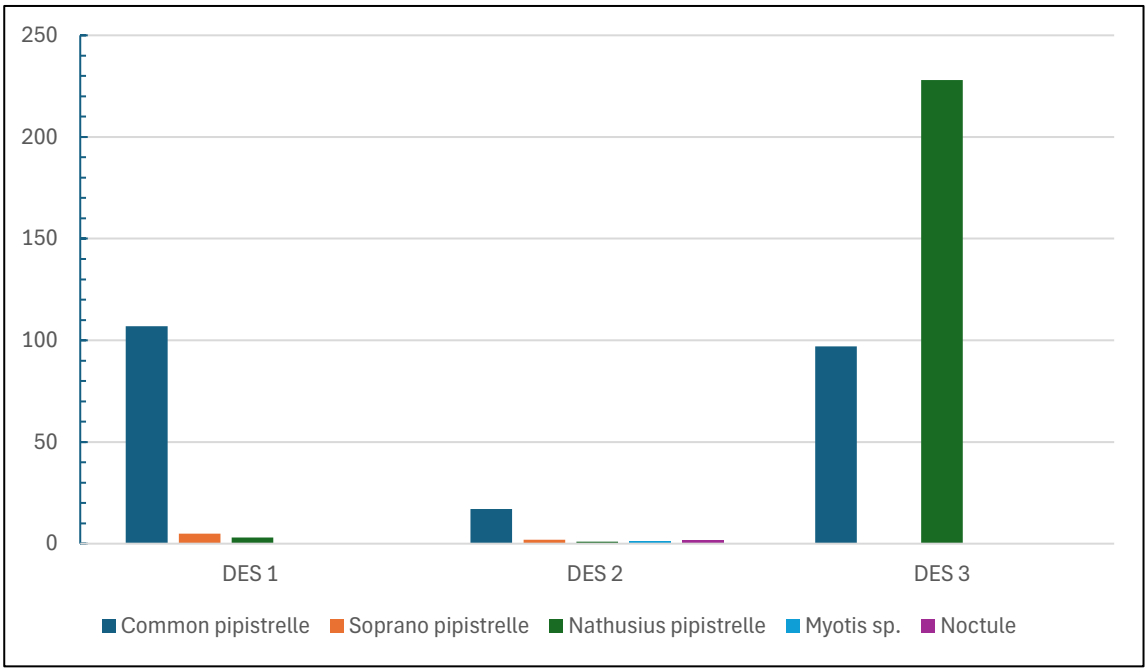
The majority of bat activity was attributed to common pipistrelle. No sightings were made, most activity was recorded by surveyor at position three where bats were commuting and social calling. No emergences were observed by surveyors or from the infrared footage analysis.

3.2.2.3 Visit 3: Dusk Emergence Survey: Main Building

Two species of bat were recorded during the survey: Nathusius' pipistrelle and common pipistrelle. The first bat identified was a Nathusius' pipistrelle at 22:03, 33 minutes after sunset, heard and seen by surveyors at position two and three at the south and west of the property.

The majority of bat activity was attributed to Nathusius' pipistrelle. A total of 228 calls from Nathusius' pipistrelles were recorded (See figure 5) and there were high levels of feeding activity in the garden to the south of the property which was observed by surveyor at position 3. (See Figure 4). No roosts were observed during the survey or the infrared footage analysis.

FIGURE 5: BAT CALL PASSES DURING DUSK EMERGENCE SURVEYS



3.2.3 Bat Hibernation Surveys

3.2.3.1 Hibernation Survey 1: 18/11/2024

A hibernation survey was carried out by a licenced ecologist on the main building to identify evidence of hibernating bats. No bats were identified during the survey.

3.2.3.2 Hibernation Survey 2: 09/01/2025

A second survey was carried out by a licenced ecologist on the main building. No bats were identified during the survey.

Given one specific building is being affected by the development, further assessment such as remote monitoring is not considered to be necessary as this method has limited ability to determine a specific hibernaculum.

3.2.3.3 Summary

Overall, the Site is considered to be of local value in relation to bats with the landscape affording commuting /foraging habitats for local bats and roosting opportunities within the main building. Four day roosts were identified after analysis of the infrared camera footage from the first dusk emergence survey in August 2024, showing one emergence per roost. Two of the bats emerged at a time when calls characteristic of common pipistrelle were recorded. Two of the emergences did not coincide with echolocating calls and therefore could not be identified by their call characteristics.

The roosts are assessed as being day roosts of common pipistrelle and unidentified bats, likely opportunistic roosts used by males or non-breeding females.

The garden within the Site boundary also provides good habitat for foraging bats. Bats were observed feeding extensively within the garden during the June 2025 dusk emergence survey.

4 SITE ASSESSMENT

4.1 SITE ASSESSMENT

This assessment is based on survey effort undertaken to date. The following section assesses the impact of the current development proposals on bats alongside avoidance, mitigation and compensation measures designed to address these impacts.

4.1.1 DESIGNATED SITES

None of the statutory and non-statutory sites within 2km are designated as a result of bats.

The residential property and garden do not provide any suitable habitat for the qualifying features of the nearby SPA or Ramsar site. No significant impact is anticipated on qualifying features as a result of such a small-scale development proposal.

4.1.2 ROOSTS

Four day-roosts were confirmed in the timber cladding on the south and southeastern aspects of the main building. The species are identified as common pipistrelle and unidentified bats. Development of the Site therefore has potential to directly impact confirmed bat roosts. Given the consistent nature of the cavities within the timber cladding bats could utilise potential roosting features additional to those already identified as roosts.

4.1.3 COMMUTING AND FORAGING HABITAT

The gardens on Site provide good foraging resources for local bats. High levels of foraging activity were observed in the gardens during the June 2025 survey and high levels of foraging pipistrelle bat species consistently detected across all surveys.

The trees within the garden offer connectivity to the wider landscape, which offers further commuting foraging opportunities in areas of cropland and hedgerows in the surrounding area.

Four species and one species group was recorded foraging and commuting in the vicinity of Marsden Cottage: Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule and Myotis sp.

4.2 ASSESSMENT OF VALUE

The roosts on site defined as day roosts of common pipistrelle and unidentified bats. The conservation status of day roosts of common pipistrelle are of Site Value. Unidentified bats cannot be assigned a definitive conservation status, but are also likely to be of Site Value given the small number of bats recorded.

Assessing the importance of the bat assemblage on site is determined using the methodology detailed in the Bat Mitigation Guidelines (Reason & Wray, 2025)[9]. Four species and one species group was recorded foraging and commuting in the vicinity of Marsden Cottage: Common pipistrelle (score 1), soprano pipistrelle (score 1), Nathusius' pipistrelle (score 3), noctule (score 2) and Myotis sp. (score 2). With a combined score of 9 of a maximum of 22 the bat assemblage on Site does not attain a score of 10 (County importance threshold – 45%) and is therefore assessed as being of Site importance.

4.3 IMPACT ASSESSMENT

The following impacts are based on the survey work to date and current plans provided by the client as shown in section 1.3.

As a result of the assessment completed and the nature of the proposed works, the likely impacts, without appropriate avoidance measures, mitigation and/or compensation scheme are:

- Potential disturbance and harm to roosting bats, should they be present at the time of any construction works.
- Loss of existing roosting opportunities provided by the building, and loss/disturbance (depending on final detailed plans) of four confirmed roost sites of up to local value.
- Minor loss of foraging/commuting habitat for bats within the site during the construction phase.
- Minor disturbance resulting from the proposed development through increased noise and lighting across the site during the construction phase.

All impacts are significant at Site Level only.

9

Reason, P.F. and Wray, S. (2025). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2. Chartered Institute of Ecology and Environmental Management, Ampfield.

5 RECOMMENDATIONS

5.1 AVOIDANCE MEASURES

The following measures should be incorporated into the design of the development, including the construction phase, to avoid and reduce impacts on wildlife:

- All construction activities will be programmed to daytime hours where possible in order to reduce disturbance to foraging and commuting bats.

5.2 MITIGATION STRATEGY

The following mitigation measures are proposed to address impacts on the wildlife that can't be avoided:

- **Demolition/extension enabling works will not take place without an appropriate Natural England licence to be applied for once planning permission received.**
- Timing of works will avoid the summer months.
- Demolition/extension enabling will be undertaken under the terms of the relevant Natural England licence and working methods will include:
    a) Removal of key features around potential bat roosting features by hand.
    b) Supervision of the removal of key features by a suitably qualified and licenced ecologist.
- Updating surveys will be required if demolition/extension enabling works have not commenced within 12 months of the last dusk emergence survey.

5.3 COMPENSATION SCHEME

Compensation is proposed to address the impacts on bats that cannot be avoided:

- Bat roosting opportunities will be provided in the form of bat bricks to maintain the ecological functionality of the building. For more information, see Appendix E.

APPENDICES

APPENDIX A – POLICY AND LEGISLATION

The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981[10], as amended by the Countryside and Rights of Way Act (CRoW) 2000[11] and the Natural Environment and Rural Communities Act (NERC) 2006[12], is the main legislation that protects wildlife in Great Britain and is the mechanism for defining and protecting nationally important Sites of Special Scientific Interest (SSSI). The legislation makes it offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection; and
- Pick or uproot any wild plant listed under Schedule 8 of the Act. Schedule 9, Part II of the Act also lists many species for which it is an offence to plant, or otherwise cause to grow, in the wild. Any material containing Japanese knotweed is also identified as controlled waste under the Environmental Protection Act 1990[13] and must be disposed of properly at licenced landfill according to the Environmental Protection Act (Duty of Care) Regulations 1991[14].

The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species a Regulations 2017[15] (the 'Habitat Regulations'), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[16], establish the requirements for protecting sites that are internationally important for threatened habitats and species – the National Site Network – and thus the requirement for a 'Habitat Regulations Assessment' of plans or developments with potential to affect them.

[10] Wildlife and Countryside Act 1981. Available from: https://www.legislation.gov.uk/ukpga/1981/69
[11] The Countryside and Rights of Way Act 2000. Available from: https://www.legislation.gov.uk/ukpga/2000/37/contents
[12] Natural Environment and Rural Communities Act 2006. Available from: https://www.legislation.gov.uk/ukpga/2006/16/contents
[13] The Environmental Protection Act 1990. Available from: https://www.legislation.gov.uk/ukpga/1990/43/contents
[14] The Environmental Protection Act (Duty of Care) Regulations 1991. Available from: https://www.legislation.gov.uk/uksi/1991/2839/made
[15] The Conservation of Habitats and Species Regulations 2017. Available from: https://www.legislation.gov.uk/uksi/2017/1012/contents/made
[16] The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Available from: https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents

The Habitat Regulations also establish the strict protection of some species – European Protected Species – and make it an offence to deliberately capture, kill or disturb certain wild animals, and to damage or destroy a breeding site or resting place of such an animal even if the animal is not present at the time.

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

This Circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England.

Part IV – *Conservation of Species protected by Law* states that the presence of a protected species is a material consideration when considering a development proposal that may result in harm to the species or its habitat and that planning authorities must have regard to European Protected Species protected under the Habitat Regulations.

The presence or otherwise of European Protected Species, and the extent that they may be affected by the proposed development, must be established before the planning permission is determined, otherwise all relevant material considerations may not have been addressed in making the decision.

APPENDIX B – VALUE OF ECOLOGICAL RECEPTORS

VALUE	EXAMPLES
International	• An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site) or an area which meets the designation criteria for such sites. • Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. • Any regularly occurring, globally threatened species. • A regularly occurring population of an internationally important species, which is threatened or rare in the UK, of uncertain conservation status • A regularly occurring, nationally significant population/number of any internationally important species.
National	• A nationally designated site (e.g. SSSI, NNR) or a discrete area which meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified. • A viable area of a UK BAP priority habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • A regularly occurring significant number/population of a nationally important species e.g. listed on the Wildlife and Countryside Act 1981 (as amended). • A regularly occurring population of a nationally important species that is threatened or rare in the county or region. • A feature identified as being of critical importance in the UK BAP.
Regional / County	• Viable areas of key habitat identified in the Regional or County BAP or smaller areas of such a habitat, which are essential to maintain the viability of the larger whole. • Regional/county significant and viable areas of key habitat identified as being of regional value in the appropriate English Nature (now Natural England) Natural Area. • A regularly occurring significant population/number of any important species important at a regional/county level. • Any regularly occurring, locally significant population of a species which is listed in a Regional/County Red Data Book or BAP on account of its regional rarity or localisation. • Sites of conservation importance that exceed the district selection criteria but that fall short of SSSI selection guidelines.
City/District/ Borough	• Areas of habitat identified in a District/City/Borough BAP or in the relevant Natural Area profile. • Sites that the designating authority has determined meet the published ecological selection criteria for designation, including

VALUE	EXAMPLES
	Local Nature Reserves selected on District/City/Borough ecological criteria. • Sites/features that are scarce within the District/City/Borough or which appreciably enrich the District/City/Borough habitat resource. • A diverse and/or ecologically valuable hedgerow network. • A population of a species that is listed in a District/City/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. • A regularly occurring, locally significant number of a District/City/Borough important species during key phases of its life cycle.
Parish	• A feature considered scarce within a Parish or which appreciably enriches the Parish resource.
Local	• Areas identified in a Local BAP or the relevant natural area profile. • Sites/features which area scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context, e.g. species-rich hedgerows. • Local Nature Reserves selected on Parish/Local ecological criteria. • Significant numbers/population of a locally important species e.g. one which is listed on the Local BAP. • Any species, populations or habitats of local importance.
Low	• Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.

APPENDIX C – BAT SUITABILITY AND SURVEY EFFORT

Classifications of suitability are based on those provided within the Bat Conservation Trust Good Practice Survey Guidelines[2], with the table below taken from page 44 of the guidelines (table 4.1).

POTENTIAL SUITABILITY	DESCRIPTION	
	ROOSTING HABITATS IN STRUCTURES	POTENTIAL FLIGHT-PATHS AND FORAGING HABITATS
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all grounds/underground levels).	No Habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats.
Negligible (a)	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can be use small and apparently unsuitable features on occasion	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions(b) and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not classic cool/stable hibernation site, but could be used by individual hibernating bats(c))	Habitat that could be used by small numbers of bats as flight-paths such as gappy hedgerow or unvegetated stream, but isolated, i.e. 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.

POTENTIAL SUITABILITY	DESCRIPTION	
	ROOSTING HABITATS IN STRUCTURES	POTENTIAL FLIGHT-PATHS AND FORAGING HABITATS
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions(b) and hibernation – categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions(b) and surrounding habitat. These structures have a potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys. Streams, hedgerows, lines of trees and woodland edge. High-quality habitat what is well connected to the wider landscape what is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts,

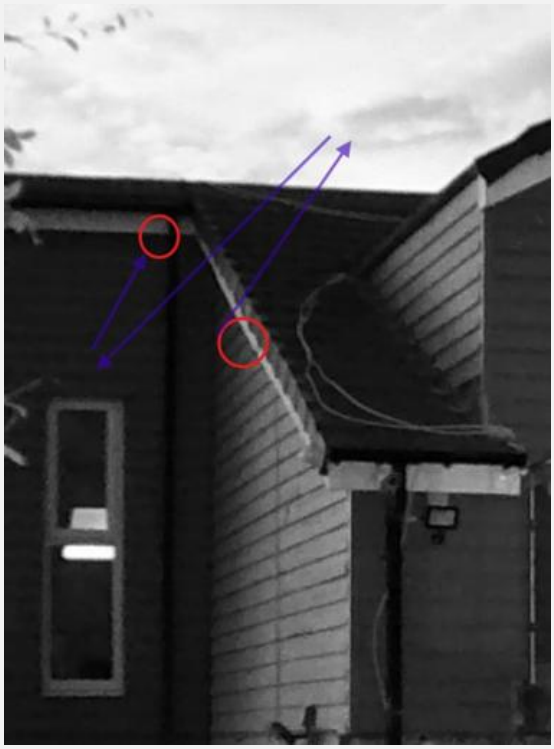
POTENTIAL SUITABILITY	DESCRIPTION	
	ROOSTING HABITATS IN STRUCTURES	POTENTIAL FLIGHT-PATHS AND FORAGING HABITATS

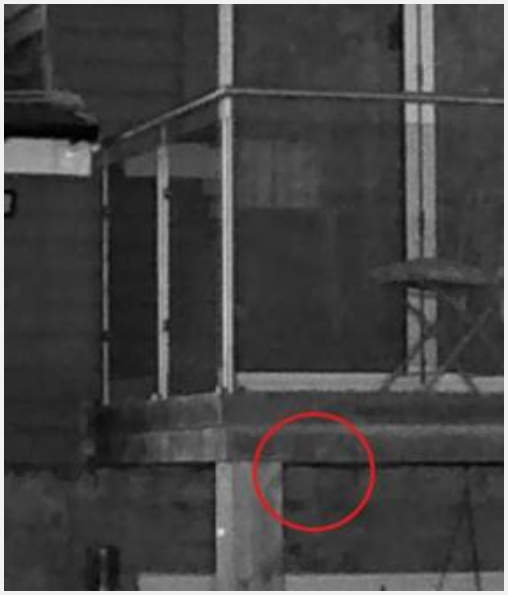
a. Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute)
b. For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance
c. Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2016 and Jansen et all., 2022). Common pipistrelle swarming has been observed in that UK (Bell. 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

The classification of the suitability relates to the level of further survey recommended.

SURVEY EFFORT AND TIMING DEPENDING ON SUITABILITY OF THE STRUCTURE OR TREE (TABLES 7.1-7.2 IN THE BCT GUIDELINES			
	LOW ROOST SUITABILITY	**MODERATE ROOST SUITABILITY**	**HIGH ROOST SUITABILITY**
Survey Effort	One dusk emergence (structures)	Two separate dusk emergence survey visits	Three separate dusk emergence survey visits
Timings	May-August (structures) No further survey (trees)	May to September. At least one must be in the optimum period (May to August)	May to September. At least two must be in the optimum period (May to August)
If bats are recorded	If bats emerge during surveys, the survey schedule will be adjusted to increase the survey effort so that enough information can be collected to characterise the roost and provide data should a Natural England Licence be required.		

APPENDIX D - BAT ROOST EMERGENCE POINT LOCATIONS

SURVEY NUMBER	DESCRIPTION	IMAGE
1	Common pipistrelle day roosts	
1	Common pipistrelle day roost	

SURVEY NUMBER	DESCRIPTION	IMAGE
1	Unidentified bat day roost	

APPENDIX E – BAT BRICK SPECIFICATION

BAT BOX SPECIFICATION

Ibstock Enclosed Bat Box 'B' or similar.	Dimensions
	Small Box: • Height: 215mm • Width: 215mm • Depth: 105mm • Weight: 5.8kg Large Box: • Height: 290mm • Width: 215mm • Depth: 105mm • Weight: 8kg

Description: The Enclosed Bat Box 'B' from Ibstock is designed for the pipistrelle bat. It is ideal for new builds as it can be integrated directly into the brickwork to produce a discrete but attractive home for bats.

The box has an attractive bat motif on the front and is both durable and fully frost resistant. The inside of the box is designed to create several roosting zones which are ideal for crevice dwelling bats. The bottom entrance means that no maintenance is required as droppings will simply fall out the bottom.

The box comes in two sizes and multiple colours in order to fit in with a development's aesthetics.

Placement should consider the following:

- The roost features should be positioned at a southernly aspect (south-west to south-east).
- Roosting features should be positioned over a range of aspects and locations in order to provide options for bats with different microclimate conditions.
- Positions chosen should be sheltered from the wind but receive direct sunlight throughout the day.
- A clear flight path into the roost is preferable with unrestricted/uncluttered access.
- Roosts should be positioned away from artificial light sources such as streetlights or security lighting.

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