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Ecological Consultants
Environmental and Rural Chartered Surveyors

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BAT SURVEY AT

Lane Ends Barn, Blackburn

Green at Heart
BEN
2013 GOLD Award

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Professional responsibility

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Institute of Ecology and Environmental Management. (www.ieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

Accuracy of report

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible bats are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and or in their interaction with bat species. If bats are found during a work programme and continuing the work programme could result in their disturbance, injury or death either directly or indirectly an offence may be committed.

These species may only be disturbed, injured or killed under license.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

This report has been printed on recycled paper as part of our commitment to achieving both the ISO 9001 Quality Assurance and ISO 14001 Environmental Assurance standards. Envirotech has been awarded the gold standard by the Cumbria Business Environmental Network for its Environmental management systems.

Signed

Andrew Gardner BSc (Hons), MSc, MCIEEM. MRICS, CEnv, Dip NDEA
Director

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Contents

1. EXECUTIVE SUMMARY

It is understood that the existing barn conversion at Lane Ends Barn will be altered and extended on one elevation to supplement the existing residential accommodation.

A daytime inspection for bats was undertaken on the 4th February 2014. This involved a close inspection of the building for signs of use by bats both internally and externally.

The habitat around the site offers a low potential for foraging being open and exposed. There is poor connectivity between the site and higher quality foraging areas.

No indications of bats roosting at the site were found during the survey.

On the basis of the survey work carried out, under guidance provided in respect of the Conservation of Habitats and Species Regulations 2010, and considering the plans for the site, it is considered that a European Protected Species Mitigation (EPSM) Licence for bats will not be required prior to works being carried out.

A mitigation strategy has been prepared and should be followed in order to ensure that the welfare of the local bat population is maintained during, and following the works.

2. INTRODUCTION

2.1 Site Description

The site lies in a rural location to the West of Brownhill. The surveyed building comprises a stone built barn conversion under a stone slate roof

There is fragmented woodland in the local area but the site is in an exposed position at SD680 309, Figure 1 and 2.

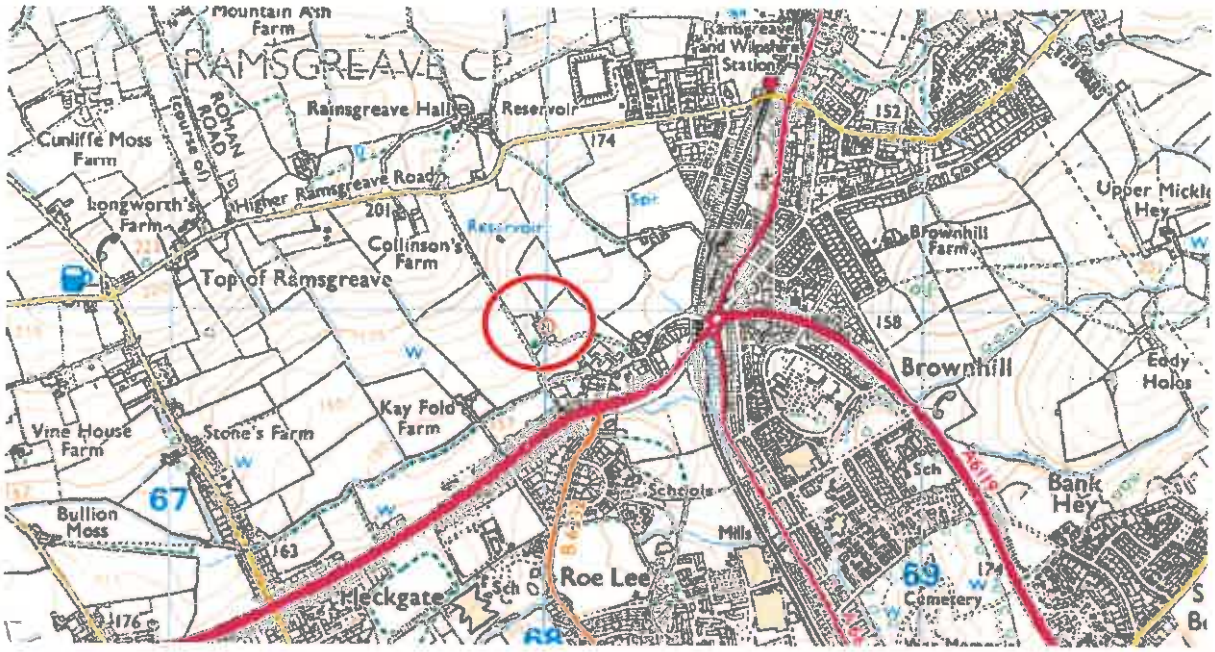


Figure 1 Ordnance Survey map of site location

Figure 2
Site Boundary

2.2 Proposed Works

It is proposed that the building is extended on the West elevation to form additional residential accommodation and a swimming pool. There will be significant internal and external alteration to the areas of the building affected.

The timing of work is unknown.

2.3 Aims of Study

To ensure that the proposed development does not affect any bat species which are listed under the Conservation (Natural Habitats, &c) Regulations 2010 and or the Wildlife and Countryside Act 1981 (as amended) the survey will:-

- ⇒ Identify past and/or current use of the site by bat species.
- ⇒ Assess the likely impact of the proposed development on these species.
- ⇒ Provide an outline mitigation/ compensation scheme (if required) for bat species affected by the development.

3. METHODOLOGY

3.1 Bats

3.1.1 Rationale of Survey

The methods used comply with those described in Hundt (2012). The following extracts from Hundt (2012) are used to determine the appropriate level of survey in accordance with the guidelines.

> Chapter 1, Paragraph 3 "The guidance should be interpreted and adapted on a case-by-case basis, according to the expert judgment of those involved. There is no substitute for knowledge and experience in survey planning, methodology and interpretation of findings, and these guidelines are intended to support these. Where examples are given they are descriptive rather than prescriptive."

Key point 1: Guidelines are descriptive rather than prescriptive and must be adapted on a case by case basis.

> Chapter 2, Paragraph 2 "A decision to undertake a bat survey should be taken if bats are reasonably likely to be present in the structure, tree, feature, site or area under consideration and may be affected by the proposed activity (whether this is development or conservation management etc.)."

Key point 2: Surveys should be undertaken where it is reasonably likely bats are present and may be affected by the proposal. Where bats are not likely to be present and or will not be affected by the proposal, survey could but need not be undertaken.

3.1.2 Desk Study

> Chapter 4.3 "The impacts of a development depend on the species and habitats present on the site. The known presence of important habitats, rare species, known roosts, or species that have already been identified as at risk from impacts should be considered from the outset, and surveys should be designed to determine the extent of potential impacts. The aim of the pre-survey data search is therefore to collate existing information from and around the proposed development site on bat activity, roosts and landscape features that may be used by bats."

Key point 3: A records search was undertaken of the Envirotech dataset. No additional data searches were considered necessary at this site as the bat species likely to be found in the local area could be adequately determined from the records searched.

> Chapter 4.4 "Once survey aims and objectives have been defined, and a pre-survey data search has been carried out to assess which species are likely to be found at the site, some knowledge of how and when those species use the landscape is needed so that appropriate survey methods can be chosen. Although pre-survey data searches provide useful information, it is unlikely that all potential species present at the site and roosts will be known. Consequently, surveys should be designed with this in mind, both to ensure coverage of the appropriate survey method can be chosen".

Key point 4: Likely bat roosting and feeding sites on and adjacent to the site were identified from aerial photography and the use of Google Street View for ground level analysis. This allows us to identify habitat connectivity and potential foraging areas at a landscape level. We are also able to relate the results of the records search against habitat types and the species of bat which could and or are recorded in the local area. Identification of bat species which may occur locally allows for additional field based surveys to be correctly targeted.

3.1.3 Field Survey

Key Point 5: To ground truth the desktop data (Key point 4) a field assessment of habitat at and adjacent to the site was made. This allows us to cross check our interpretation of aerial photography with actual habitat on the ground. There is occasionally significant change between landscape detailed on aerial photographs and habitat on the ground. Buildings, hedgerows and roads may be built or removed. For example occasionally woodland is felled or has been replanted.

> Chapter 8.2 "A preliminary roost assessment is used to determine the actual or likely presence of bats and how they use a roost site. It involves compiling information on the location of all known or likely roost sites and looking for evidence of whether they are used by bats, by means of internal and external inspection.
>
> For many built structures, such as bridges or walls, internal inspections are not possible and different methods may be required; however, where possible, internal inspection of a structure should be carried out."

Key point 6: A thorough inspection of the walls and eaves was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps and cracks in the walls or under the eaves and soffits may provide access to the building by bats. Where possible all gaps and cracks judged to be of a suitable size for bats to take entry to the building were inspected

either from the ground or the top of a ladder. Where appropriate an endoscope was used to fully inspect these gaps internally.

Key Point 7: A thorough inspection of the roof was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps under the roof coverings, ridge lines and flashing may provide suitable roost sites for bats. All gaps and cracks judged to be of a suitable size for bats to take entry to the building were inspected either from the ground or the top of a ladder. Using short focus high quality binoculars and a torch to illuminate any gaps underneath the roof coverings it is often possible to see residual evidence of bats such as droppings, scratch, grease and urine staining, lichen build-up from increase nutrient levels or bats themselves.

Key Point 8: A thorough inspection of the interior and exterior of the building to look for signs of bats such as grease or scratch marks, bat droppings and feeding detritus was made. Windows and or other items in and around the site were inspected for urine staining.

Key Point 9: A thorough search for detritus associated with bat feeding perches and roosts was undertaken. These roosts are usually in roof voids, under eaves and open buildings.

Key Point 10: Internal voids and rooms were assessed where it was considered bats may be able to take access. Indications of use such as grease and scratch marks, urine staining, droppings, desiccated young bats, dead bats in water tanks and cobweb free areas under the roof and roof supports were all assessed.

> Chapter 8.2 Paragraph 6 "The time needed for internal and external inspection surveys depends on the number of surveyors and the complexity of the structure being surveyed. Surveys of relatively simple buildings may be straightforward and quick to complete, but it takes time to view and understand the roof structure of complex buildings or groups of buildings".
>
> Chapter 8.2 Paragraph 7 and 8 "As a guide, an internal inspection of the roof area of an unexceptional four-bedroom domestic property is likely to take one surveyor one to two hours; an internal inspection of a traditional timber-framed farm building may take one surveyor between four hours and one day; an internal inspection of a large complex building such as a former hospital or stately home, with numerous roof voids and buildings, may take one surveyor more than one day.
>
> When assessing a site's potential as a hibernaculum, surveyors should be aware that bats may hibernate in places that cannot be seen or accessed; this may lower the confidence in a negative survey result. It also means that inspections of winter roosts can be time-consuming, as endoscopes and mirrors are often required in order to search for individual bats or small groups of bats hidden in crevices.
>
> Time taken for daytime external inspection surveys also varies depending on the complexity of the structure. Evidence of bats may not remain after rain or wind, so weather and time of year will have a bearing on the level of confidence that an external inspection will give.

Key Point 11: It is the considered opinion of the surveyor who undertook this survey that the time taken to undertake the survey was sufficient given the complexity of the building, methods used, time of year and species of bat which may be present. The times in Hundt (2012) Chapter 8.2 should be considered in light of Key Point 1 (interpretation on a case by

case basis) and Key Point 2 (survey should cover areas where it is reasonably likely bats are present and may be affected by the proposal).

> Chapter 4.6.2 "The overall quality of the habitat at the proposed development site, the number of habitat features likely to affect bats if altered by development, the potential impact of the proposed development, the species likely to use the site, and the importance of roosts of species likely to use site should all be considered when deciding the level of survey effort required. The level of survey effort should be proportional to the likely impact of the proposed development".

Key Point 12: In this case it is the considered opinion of the surveyor who undertook the survey that the reasonable probable likelihood and status of bats roosting at the site has been determined. Additional survey effort is therefore not required to evaluate potential impacts, species and use of the site. A table showing the timing of the survey in relation to the bat year is shown on Figure 3. This table was used to guide the above interpretation.

This site was assessed at the following period/s in the bat year Figure 3. Some roost types can be clearly identified when not in use or can be inferred from habitat type/ residual evidence.

Month of Year		Jan		Feb		Mar		Apr		May		June		July		Aug		Sep		Oct		Nov		Dec	
Survey timing at this site =		☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Hibernation; activity in mild weather						Becoming more active		Maternity sites. Babies born in late-May/June, independent by July-August						Mating & swarming sites						Hibernation; activity in mild weather			
Activity surveys																									
Inspection of buildings and structures for roosts																									
Tree Survey- Emergence or re-entry surveys																									
Tree Surveys- Observation from the ground																									
Bat detector surveys for dusk/dawn emergence/re-entry1 for	Transitional Roost																								
	Maternity roosts																								
	Satellite Roost																								
	Mating Roost																								
	Hibernation Roost																								
	Night Roost																								
	Day Roost																								
	Feeding Roost																								
	Swarming																								

***Figure 3**. Survey timing in the bat year from Mitchell-Jones (2004) and Hundt (2012).*

Key Point 13: An assessment of the species of bat likely to be found at the survey site has been made (Key Point 3 and 4). An assessment of the weather and time of year before and during the survey was also made. The duration and timing of survey was considered proportionate to the species of bats likely to be found, potential roost types, weather and cover around potential roost entrances.

Additional details of habitat types and the potential for specific species of bat to occur at the site, which influenced the timing and scope of the survey is included in Table 2.

Date of visit		4th February 2013	Notes
Weather conditions	Cloud	50%	1
	Wind	Nil	1
	Rain	Nil	1
	Temperature	8 Degrees Celsius	1
Surveyors		AG	

Table 1. Survey dates and times

1. Weather conditions were considered acceptable for a survey at the site given the potential for use of the site and species which may be present. Temperature is less critical to the type of daytime inspection undertaken.

Surveyors

1. Mr Andrew Gardner (AG) BSc (Hons), MSc, MCIEEM, MRICS, CEnv
   Natural England Bat Licence (All species, all counties)

4. DEFINITIONS

Definitions used in this report are detailed here, in reference to Hundt (2012).

Building

A structure with walls and a roof, for example a residential property, block of flats, office block, warehouse, garden house, folly, barn, stable, lime kiln, tower, church, former military pill box, school, hospital or village hall. Some buildings have cellars (underground sites) beneath them.

Built structure

A structure that was made by humans but cannot be described as a building or as an underground site, for example a bridge, wall, monument, statue, free-standing chimney, or derelict building consisting only of walls.

Underground site

A human-made or natural structure that is entirely or partially underground, for example a cave, cellar, subterranean, mine, duct, tunnel, military bunker, well, or ice house.

Roost (breeding site / resting place)

The implementation of the EU Habitats Directive provides general definitions for breeding sites and resting places. For bats the two often overlap, which is why in many cases they are both referred to as roosts. Any interpretation of the terms 'breeding sites', 'resting places' and 'roosts' must take into account the prevailing conditions.

Natural England licensing guidelines (Natural England, 2011) discusses the age of roosts and mitigation requirements as well as the period of time bat roosts are protected when not used. The following is reproduced from this document.

> "Q. The development site ceased to be inhabited last year and it is prone to vandalism. I found evidence of a maternity roost but all current signs suggest that the site is now abandoned by bats. What should I mitigate for?
>
> Wildlife Advisers do not use a tightly defined period within which bat need to have used a structure beyond which it is no longer regarded as a bat roost. A structure can be regarded as a bat roost even if not knowingly occupied by bats for a year or two."
>
> The Method Statements mitigation should reflect compensation for a roost at its highest status within recent years. For example, meagre mitigation for an occasionally used, summer, non-maternity roost that had declined from a maternity roost as a result of human induced change to the roosts conditions e.g. vandalism, may not be acceptable to the Wildlife Adviser.
>
> A demolished structure, irrespective of its previous bat occupancy, clearly, ceases to be a bat roost. An intact structure without bat occupancy perhaps after a few years, and more assuredly after five years, also ceases to be a bat roost". [Emphasis added]

Natural Englands guidelines are derived from, the European Commission's Article 12 guidance on the definition of resting places for European Protected species.

European Commission (2007), section (54) and (59) state

> "(54) It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place."
>
> (59) Resting places: a definition
>
> Resting places are defined here as the areas essential to sustain an animal or group of animals when they are not active. For species that have a sessile stage, a resting place is defined as the site of attachment. Resting places will include structures created by animals to function as resting places. Resting places that are used regularly, either within or between years, must be protected even when not occupied."

It is clear that for a site to be classified as a roost when not occupied there must have been past habitual and the probability of future use within at least a two year period as defined as "within or between years".

European Commission (2007) summaries the requirement for the protection of resting sites thus

> "Breeding sites and resting places are to be strictly protected, because they are crucial to the life cycle of animals and are vital parts of a species' entire habitat. Article 12(1)(d) should therefore be understood as aiming to safeguard the continued ecological functionality of such sites and places, ensuring that they continue to provide all the elements needed by a specific animal to rest or to breed successfully. The protection applies all year round if these sites are used on a regular basis." [Emphasis added]

Summary

"Breeding site"

Breeding is defined here as mating and giving birth to young. A breeding site is the area needed to mate and to give birth in, and includes the vicinity of the roost or parturition site, where offspring are dependent on such sites. For some species, breeding sites include structures needed for territorial definition and defence. Breeding sites that are used regularly, either within or between years, must be protected even when not occupied. Breeding sites include areas required for:

1. Courtship
2. Mating
3. Parturition, including areas around the parturition site when it is occupied by young dependent on that site.

Resting place

Resting places are defined here as the areas essential to sustain bats when they are not active. Resting places that are used regularly, either within or between years, must be protected even when not occupied. Resting places essential for survival include structures and habitat features required for:

1. Thermoregulatory behaviour
2. Resting, sleeping or recuperation
3. Hiding, protection or refuge
4. Hibernation

5. RESULTS

5.1 Desk Study

A search of the Envirotech records found no records of bats within 2km of the site.

Records are shown on Figure 4.

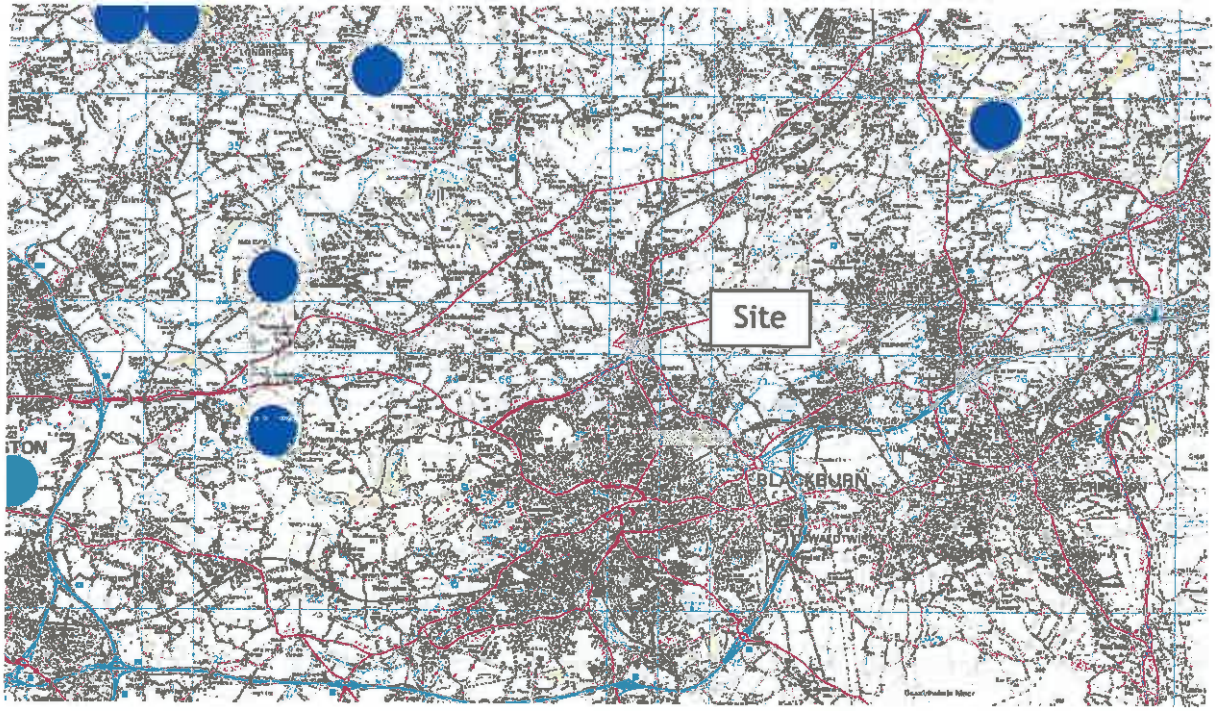
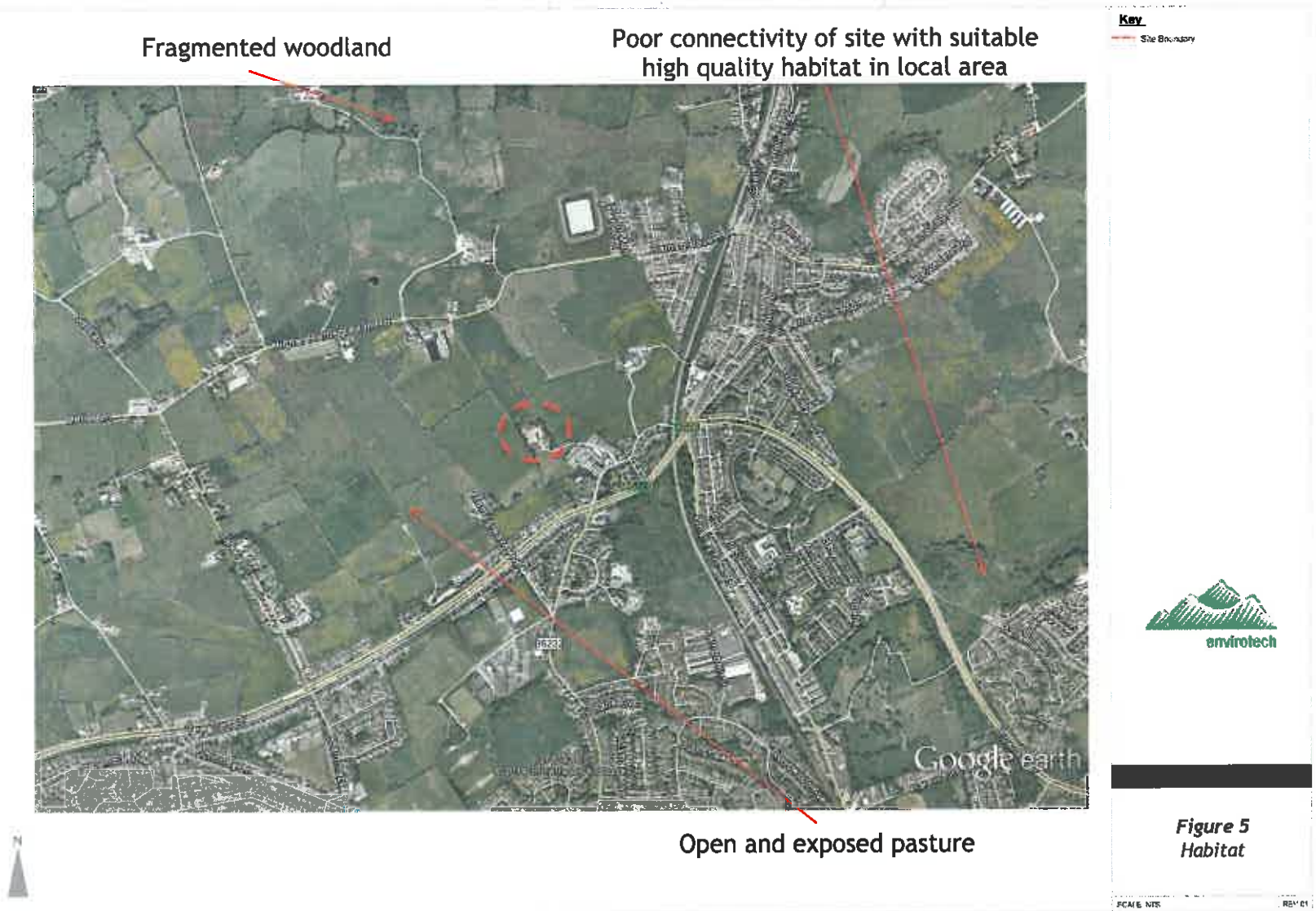


Figure 4 - Bat records

The habitat at and adjacent to the site was assessed from satellite imagery this was then ground truthed, Figure 5.


Fragmented woodland
Poor connectivity of site with suitable high quality habitat in local area
Open and exposed pasture
Key
Site Boundary
Google earth
N
envirotech
Figure 5
Habitat

From the pre-existing records, a review of aerial photography, a field assessment of the area adjacent to the site and the experience of the surveyor, bat species which may occur on or adjacent to the site and the rationale for this decision are detailed in Table 2. This assessment does not look at the roosting potential of the site. The assessment of bats which are indicated as potentially occurring on the site or local area is based on the initial largely desk based scoping survey. Additional site specific assessment is provided later in this report. This assessment does however allow for the scope of site survey to be refined.

Species	Ecology	Suitable features on/adjacent to site	Highly likely to occur	May occur	Unlikely to occur
Common Pipistrelle (*Pipistrellus pipistrellus*)	**Foraging & Commuting Habitat:** wide range including those associated with watercourses, woodland, grassland & built up areas; also feeds around lights. **Flying range:** feeding areas up to 3-4km from roosts. **Distribution:** common throughout UK; most common species in England & Wales.	Common Pipistrelle are likely to make use of the fragmented hedgerows and distant woodland to forage. They are unlikely to use the site for foraging in significant numbers due to the exposed nature of the site and low vegetative diversity.	**Locally**		
			☐	☒	☐
			On Site		
			☐	☒	☐
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	**Foraging & Commuting Habitat:** forages mostly over habitats associated with water, often follows watercourses when commuting. **Flying range:** feeding areas up to 3-4km from roosts. **Distribution:** common throughout UK; second most common species in UK, more so in North & West.	There are no significant water bodies near the site which would be favourable for bats which feed in "water" landscapes such as Soprano Pipistrelle. They are unlikely to use the site for foraging in significant numbers due to the exposed nature of the site and low vegetative diversity. Livestock are not housed in the building on site, there is little livestock manure which would be attractive to insects and bats around the site.	**Locally**		
			☐	☒	☐
			On Site		
			☐	☐	☒

Daubenton's Bat (*Myotis daubentonii*)	**Foraging & Commuting Habitat:** forages mainly close to the surface of slow-moving or calm water. Also forages along trees & woodland rides, especially when associated with water. **Flying range:** feeds up to 6-10km from roost. **Distribution:** throughout UK with the exception of some offshore islands.	There are no significant water bodies near the site which would be favourable for bats which feed in "water" landscapes such as Daubenton's. They are unlikely to use the site as it is too isolated from water bodies. This species of bat usually roosts in trees but may use built structures and buildings.	**Locally**		
			☐	☐	☒
			On Site		
			☐	☐	☒
Nathusius' Pipistrelle (*Pipistrellus nathusii*)	**Foraging & Commuting Habitat:** forages over water & along woodland edges & rides. **Flying range:** nightly flying poorly known. Long distance migrant, may cross from continental Europe seasonally. **Distribution:** Unclear. Present in southern England, Scotland & Northern Ireland & probably Wales.	This species of bat is widespread but uncommon. They are unlikely to use the site for foraging in significant numbers due to the exposed nature of the site and low vegetative diversity. Livestock are not housed in the building on site, there is little livestock manure which would be attractive to insects and bats in the local area. There is poor woodland cover on the site.	**Locally**		
			☐	☐	☒
			On Site		
			☐	☐	☒
Brown Long-eared Bat (*Plecotus auritus*)	**Foraging & Commuting Habitat:** lives & forages in woodland & parkland with old trees. **Flying range:** generally within 1-2km of roost. **Distribution:** common throughout UK where there is suitable woodland. Rarely heard on bat detectors as echolocation intensity low.	Brown Long-eared bats prefer to roost or fly inside enclosed spaces before emerging. There are areas of the building subject to development which would be potentially suitable for this species. We judge they would be unlikely to utilise the adjacent environs as they are insufficiently "closed" for this species. They are unlikely to use the site in significant numbers due to the poor connectivity of the site with woodland. The site is highly unlikely to be required for species survival.	**Locally**		
			☐	☒	☐
			On Site		
			☐	☐	☒

Natterer's Bat (*Myotis nattereri*)	**Foraging & Commuting Habitat:** forages in tree canopies or close to foliage & by the edge of water, higher above the surface than Daubenton's bats. **Flying range:** generally up to 3km from roosts, though travels ~60km between summer/autumn and winter roosts. **Distribution:** throughout the UK with the exception of the far North of Scotland; wherever there is suitable woodland.	Natterer's bats prefer to roost or fly inside enclosed spaces before emerging. There are areas of the building subject to development which would be potentially suitable for this species. We judge they would be unlikely to utilise the adjacent environs as they are insufficiently "closed" for this species. This species is more habitat specific in its requirements than Brown Long-eared.	**Locally**		
			☐	☐	☒
			On Site		
			☐	☐	☒
Whiskered Bat / Brandt's Bat (*Myotis mystacinus) / Myotis brandtii*)	**Foraging & Commuting Habitat:** whiskered forage in a wide range of habitats including woodland, parkland, flowing water & sub-urban gardens. Brandt's bats forage in woodlands & close to water bodies. **Flying range:** unknown. Distance between summer & winter roosts usually <50km. **Distribution:** little known about individual distribution. Whiskered & Brandt's found throughout England, Wales, southern Scotland & parts of Northern Ireland.	Whiskered and Brandt's are likely to make use of the fragmented hedgerows and distant woodland to forage. They are unlikely to use the site in significant numbers due to the poor connectivity of the site with woodland. The site is highly unlikely to be required for species survival.	**Locally**		
			☐	☒	☐
			On Site		
			☐	☒	☐

Alcathoe Bat *(Myotis alcathoe)*	**Foraging & Commuting Habitat:** Alcathoe bats forage high in the canopy of trees, near water. In eastern Europe they are closely associated with ancient woodland. **Flying range:** unknown. Distance between summer & winter roosts usually <50km. **Distribution:** Alcathoe only recorded from sites in Sussex and Yorkshire from 2003.	Alcathoes bat are widespread, population densities are unknown but they have a strong preference for ancient woodland near water in Europe where they are more common. They are unlikely to make use of the fragmented hedgerows and distant woodland or site to forage or roost.	**Locally**		
			☐	☐	☒
			On Site		
			☐	☐	☒
Noctule *(Nyctalus noctula)*	**Foraging & Commuting Habitat:** flies high & straight to feeding sites over parkland, pasture, water & deciduous woodland. Also feeds around lights. **Flying range:** migratory (>100km) in continental Europe. **Distribution:** throughout England & Wales into southern Scotland. Not recorded in Ireland.	Noctules are rarely found roosting in buildings but have been known to do so. This species of bat disperses widely from their roosts, which tend to be in trees, to feed. We would judge it unlikely they would roost in a building such as that surveyed but they are likely to be found in the local area.	**Locally**		
			☐	☒	☐
			On Site		
			☐	☐	☒

Table 2. *Bat species which may or may not occur on or near the site based on the local landscape.*

5.2 Field Survey

5.2.1 Habitat Description

The habitat on and adjacent to the site identified from satellite images was ground truthed. Details of the habitats found on and adjacent to the site are detailed in Figure 5.

It is judged that the most suitable commuting route for bats into and out of the site is the road to the South-east. The surrounding habitat is considered to have a low foraging potential.

The site is not considered to offer optimal foraging opportunities. There are few animal manures associated with the surrounding land. There is limited vegetative diversity around the building which is in an exposed location.

5.2.2 Bat Roost Survey

5.2.2.1 General description

There is one building on site (Building 1) which comprises a barn conversion.

5.2.3 Building 1

5.2.3.1 External walls/ Eaves

The walls of the building are made from natural stone and are in excellent condition. There are no structural gaps or cracks, the pointing between the dressed stone is in excellent condition.

There are soffit and eaves boards on the East and West elevation. These are in excellent condition and sit tightly against the external walls. There were no indications of roosting by bats in these areas.

Bats could not gain access to roost in the building either in the external walls or eaves.

5.2.3.2 Roof

The roof of the building is made from stone slate and is lined. There were no raised slates on either roof pitch and no ridgeline gaps where identified. The full extent of the roof could be seen from the ground with close focus binoculars and a 1,000,000 candle power torch. No indications of use by bats could be found.

Solar panels have been installed on the West elevation which further prevents bats from using this elevation of the building.

5.2.3.3 Internal walls

The internal walls of the house are unavailable to roosting bats as they form part of the residence. Within the roof voids the walls are well sealed and there was a thick covering of cobwebs and dust on them.

5.2.3.4 Roof Voids/ Roof structure

The timber beams in the roof were found to be in excellent condition with no rot, splits or gaps suitable for roosting or hibernating bats. There was a good covering of cobwebs under the roof and spanning the internal space. Insulation was present and was found to be clean with no indications of use by bats apparent.

5.2.3.5 Summary

To summarise the building is of moderate size and the external walls are in excellent condition. The eaves lines and roof are very well sealed. The building offers negligible potential for use by bats.

6. CONSTRAINTS

6.1 Bats

We judge that the site survey is sufficient to address the risk to bats at the site based on the species present in the local area, construction of the buildings and nature of the proposed work. The level of survey effort accords with the recommendations of Hundt (2012). The

reasonable probable use of the site by bats has been determined.

7. INTERPRETATION

7.1 Presence / absence

There was no past or current evidence of bats roosting found at the site during the survey.

We consider that the building is unlikely to be used by significant numbers of bats for roosting. It is highly unlikely the building is essential for species survival. Precautionary mitigation would be appropriate.

7.2 Population size class assessment

From a review of adjacent habitat the maximum number of bats that are likely to use the area around the site is of the magnitude 1-10 (small).

7.3 Site status assessment

Whilst the site itself is unlikely to be used as a roost by a significant number of bats, there is use of the adjacent landscape. Bats are likely to rely on a number of roost sites in buildings and trees in the local area. It is therefore likely that the site has a low significance for bats. We consider the Continued Ecological Functionality of the site is unlikely to be affected as a result of the proposal.

8. POTENTIAL IMPACTS

8.1 Bat Roosts

8.1.1 Pre and mid-activity impacts

A worst case scenario will be considered in addressing potential impacts at the site without mitigation.

8.1.1.1 Maternity Roosts

No signs of past maternity or gathering roosts were found at the site during the survey. The potential for a maternity or gathering roost in the building is judged to be very low due to the absence of highly suitable roost sites. Evidence of past use of the site by large numbers of bats such as would occur in a maternity or gathering roost, such as staining on the roof or walls, was absent. Evidence of intensive/ regular use such as occurs in such roosts can usually be found at any time of year. **We judge there is no risk to a maternity colony or gathering roost at this site from the proposed work.**

8.1.1.2 Satellite Roosts

We do not consider that satellite roosts will be affected by the proposal. We consider the local environs are unlikely to support linked maternity roosts.

8.1.1.3 Transitional and day roost sites

We judge there is a negligible risk of disturbing bats in or loss of transitional or day roost sites. We judge that on balance it is unlikely this sites potential for use for these purposes will be degraded by the proposed work. There are likely to be numerous other more suitable sites in other buildings and trees in the wider area. The building is unlikely to offer significant roosting potential.

It is highly unlikely but potentially possible that bats may make use of the building when new gaps in the roof and wall are opened during construction. Habitual use of such sites is highly unlikely to occur. Precautionary mitigation can adequately account for this potential.

8.1.1.4 Night Roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for night roosting.

8.1.1.5 Feeding roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for feeding roosts.

8.1.1.6 Lek sites

In our experience lek sites are commonly found in proximity to the main feeding and commuting routes. The primarily commuting and feeding area at the site was judged to be the road to the South-east. There were no potential lek sites identified in the building facing this commuting route which are also close enough to it to be used by male bats for leks. It is therefore unlikely there will be use of the building by bats for lekking.

8.1.1.7 Hibernation

There are no areas of rotten wood in the building and or damp walls which also offer crevices which could be suitable for hibernating *Pipistrelle* spp. bats.

There are no areas of the building which are sufficiently damp, cool and darkened which would be ideal for hibernating *Myotis* spp. bats. There is very little evidence and limited potential for hibernation at the site; it is therefore unlikely there will be loss of hibernation sites.

8.1.1.8 Swarming

There is unlikely to be any loss of a swarming site. Swarming sites are generally found at or near hibernation sites. We judge that the site is unlikely to be used by *Myotis* Spp. bats and Brown Long-eared *(Plecotus auritus)* which have been known to swarm as there are no hibernation sites for these species in the building.

8.1.1.9 Summary

Without mitigation, there is considered to be only a negligible potential for the alteration or loss of occasional, unconfirmed roost sites for bats at the site and this is unlikely to have a significant impact on their local distribution.

8.1.2 *Long term impacts*

There is on balance a low risk of long term negative impacts on the favourable conservation status of bats in the local area as a result of the proposed work.

8.1.3 *Post activity interference impacts*

There is unlikely to be disturbance to roosting bats during the post construction phase of the project. There is already significant disturbance at the site from existing use of the site and surrounds.

8.1.4 *Other impacts*

It is our opinion that there will be no significant other negative impacts relating to the proposed work which may affect bat species.

8.1.5 *Bat Foraging and Commuting Habitat*

There is unlikely to be a disruption to any commuting routes at the site. The site does not lie on or near to a high quality commuting route.

There is unlikely to be a disturbance to feeding bats during and after the construction phase of the project. It is judged that the foraging areas near the site will be unaffected by the proposed work.

9. RECOMMENDATIONS AND MITIGATION

9.1 Further Survey

We consider that the risk to bats in the building will remain low and no additional survey work is required prior to the determination of the planning application.

9.2 Mitigation Measures

9.2.1 Bats

Natural England requires that mitigation addresses the impacts picked up by the site assessment, as follows:-

- Quantitative characteristics: There should be no net loss of roost sites, and in fact where significant impacts are predicted there will be an expectation that compensation will provide an enhanced resource compared with that to be lost. The reasoning behind this concept is that the acceptability of newly created roosts by bats is not predictable.

- Qualitative characteristics: the plans should aim to replace like with like. As an extreme example, it would be unacceptable to replace maternity roosts with hibernation sites.

- Functional characteristics: compensation should aim to ensure that the affected bat population can function as before. This may require attention to the environment around the roost.

Natural England also recommends that precautions are taken to avoid the deliberate killing or injury of bats during development work at the site.

The site survey found no evidence of habitual use of the building by roosting bats in or between years. The survey effort was sufficient to allow for an assessment of this to be made.

9.2.1.1 Bat Roosts

As a precautionary approach the following guidelines will be adhered to.

1. All contractors on the site will be made aware of the possible presence of bats prior to the commencement of work.

2. Contractors will be provided with the contact details of an appropriately qualified individual who can provide advice in relation to bats at any time during work. In the event that bats are found during work, unless the action has already been cleared by a suitably qualified individual, **all work will cease** and an appropriately qualified individual will be contacted for further advice.

3. **Contractors will be observant during demolition work for bats which may use the building if new areas of the roof are exposed and left open overnight. Bats are opportunistic and may make use of gaps opened up during work overnight.**

4. If it is necessary to remove a bat to avoid it being harmed, gloves should be worn. It should be carefully caught in a cardboard box and kept in the dark in a quiet place until it can be released at dusk near to where it was found, or moved to an undisturbed part of the building, with outside access, and placed in a location safe from predators.

5. **If bats or bat roosts are found during work, all work should cease.** The site will need to be re-assessed in regard to its use by bats. A Natural England license may be required if continuing work is, on balance, likely to result in the disturbance, killing or injury of bats or the alteration, destruction or obstruction of roost site.

6. Remove all roof coverings by hand only.

7. There is no need to restrict the timing of work. Use of the structure by bats is equally likely to occur at any time of the year but will be at low levels.

Following English Nature (Natural England) guidance Mitchell-Jones (2004), if these guidelines are followed we would consider that on balance, a disturbance to bat species which could be contrary to the 2010 Habitat Regulations and Wildlife and Countryside Act 1981 (as amended) is unlikely. **If bats are found prior to or during work a license application may be required.**

9.2.1.2 Mitigation for Foraging and Commuting Habitat

No specific mitigation for foraging and commuting habitat is necessary. The habitat surrounding the site does not change significantly.

9.2.1.3 Requirement for Habitats Regulations (EPS) Licence

At this stage, we judge that a Natural England license will not be required to cover work on the building. No bats were confirmed as breeding or roosting at the site, the loss of potential roost sites will be avoided and no significant disturbance to bats will occur, so long as the recommendations of this report are followed.

If bats are likely to be significantly disturbed or bat roosts or breeding sites are found as a result of work, all work must cease and the site will need to be re-assessed by a suitably qualified person with regard to its use by bats. A Natural England license may be required if continuing work is, on balance, likely to result in the disturbance, killing or injury of bats or the alteration, destruction or obstruction of a roost or breeding site.

10. MITIGATION SUMMARY

The site survey found no evidence of bats roosting. Precautionary mitigation in respect of stripping the roof by hand and being observant for bats will be undertaken.

On the basis of survey information, specialist knowledge of bat species and the mitigation that has been proposed, it is considered that on balance the proposed activity is reasonably unlikely to result in an offence under regulation 39 of the Conservation (Natural Habitats, &c.) Regulations 2010. We do not consider there to be a need for a Natural England licence at this time.

11. REFERENCES

Information from the following sources has been used in preparing the survey report.

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APPENDIX 1 PREVIOUS SURVEY INFORMATION

APPENDIX 2 PHOTOGRAPHS

Photograph	Notes
	The garden onto which the extension will go is disturbed and open. No trees will be lost
	The walls and eaves are very well sealed and offer no potential for roosting bats
	Solar panels further block what is already a very well-sealed roof on the West elevation

	The roof voids are very clean