



PHASE 1 AND 2 BAT SURVEY REPORT

HEATH (BOSCOTT'S) BARN, SIBFORD GOWER,
OXFORDSHIRE

For

J BLACKWELL

20th May 2013

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Control Sheet

General Report Information	
Report title	Phase 1 and 2 Bat Survey Report
Client	Mr J Blackwell
Location	Heath (Boscott's) Barn, B4035, Sibford Gower, Oxfordshire
Lead ecologist	J. Russ
Report author	Dr. J. M. Russ

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A Introduction

A.1 Background to activity/development

This report has been prepared by Dr Jon Russ at the request of Mr Jonathan Blackwell. Planning Consent was granted by Cherwell District Council on 29th March 2012 to convert Heath Barn in Sibford Gower, Oxfordshire to a dwelling (Planning Ref: 12/00141/F). A Phase 1 bat survey carried out in 2011 by Ridgeway Ecology identified a small number of bat droppings within the barn and a single pipistrelle bat roosting in a crevice in a stone wall. In addition, the survey identified other potential roosting sites that could be used by bats and concluded that *“evening emergence surveys and/or dawn surveys [must be] carried out between May and August (inclusive) in accordance with the guidelines produced by The Bat Conservation Trust (Bat Conservation Trust 2007) to accurately determine the species present, the population size and the status of the roosts”*. Planning consent was granted with the following condition (No 13):

“Prior to commencement of the development, the results of two bat activity surveys evening emergence and dawn surveys carried out on two separate days between the months of May and August inclusive, shall be submitted to and agreed in writing by the Local Planning Authority. The report shall include measures of all mitigation identified as required as a result of the bat activity findings on site and such measures shall be implemented on site in accordance with the agreed mitigation measures.”

The present survey was commissioned by the current owner, Mr J Blackwell, to obtain this information.

Note: Although the barn is labelled as ‘Heath Barn’ on Ordnance Survey maps from 1882 to the present day it is known locally as ‘Boscott’s Barn’.

A.2 Planning and Legislative context

The information below is intended only as guidance to the legislation relating to these species. The Acts themselves should be referred to for the correct legal wording.

Bats – Legislative context

All bats are included in Schedule 2 of The Conservation of Habitats and Species Regulations 2010, which implement the requirements of the Habitats Directive in England, Scotland and Wales and in Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations (Northern Ireland) 1995 (as amended) which implement the requirements of the Habitats Directive in Northern Ireland. Bats and their breeding sites or resting places are protected under Regulation 39. An amendment to the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 came into force in Northern Ireland on 21st August 2007 (Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) 2007).

It is an offence for anyone without a license to:

- Intentionally or recklessly/deliberately injure, take or kill a bat;
- To possess a bat (unless obtained legally) whether alive or dead;
- Intentionally or recklessly/deliberately damage, destroy or obstruct access to any place that bats use for shelter or protection whether bats are present or not;
- Intentionally or recklessly/deliberately disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- deliberately disturb bats in such a way as to be likely significantly to affect—
 - (i) the ability of any significant group of bats to survive, breed, or rear or nurture their young; or
 - (ii) the local distribution or abundance of that species;

Prosecution could result in imprisonment, fines of £5,000 per animal affected and confiscation of vehicles and equipment used.

Recent amendments to the Habitat Regulations in 2007 have removed many of the defences. This includes the commonly relied upon 'incidental result defence', which previously covered acts that were the incidental result of an otherwise lawful activity and which could not reasonably have been avoided. As the incidental result of a lawful operation defence has been removed from legislation (Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007) operators are now open to this strict liability offence, whether the damage occurs by accident or not. An offence will only be committed if the deliberate disturbance is likely to significantly affect a significant group of animals of that species' ability to survive, breed, or rear or nurture its young or is likely to significantly affect the local distribution or abundance of that species. Deliberate disturbance of a protected animal (species on Schedule 5 which includes EPS) in its place of shelter or protection will continue to be an offence under the Wildlife and Countryside Act 1981. However, the incidental result of a lawful operation defence will be available for that offence where the disturbance could not have been reasonably avoided.

In England, Scotland and Wales all bat species are protected under the Wildlife and Countryside Act 1981 (WCA) (as amended) through inclusion in Schedule 5. The existing offences under the Wildlife and Countryside Act (1981) as amended which cover obstruction of places used for shelter or protection, disturbance and sale still apply to European protected species.

In England and Wales, the WCA was amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence ('or recklessly' to S9(4)(a) and (b)), makes species offences arrestable, increases the time limits for some prosecutions and increases penalties.

Exemptions can be granted from the protection afforded to bats under the Habitat Regulations, by means of a EPS (European Protected Species) Habitats Regulations licence obtained from Natural England.

A 'EPS Habitats Regulations Licence' could be required for:

- Demolition of a building known to be used by bats prior to development of a site
- Conversion of barns or other buildings known to be used by bats
- Removal of trees known to be used by bats as well as tree pruning
- Significant alterations to roof voids known to be used by bats
- Road building or widening
- Bridge strengthening

There are three tests, which must be satisfied, before a licence can be issued to permit otherwise prohibited acts;

- Regulation 53(2)(e), for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment; or
- Regulation 53(2)(f) for the purpose of preventing the spread of disease; or
- Regulation 53(2)(g) for the purpose of preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other forms of property or to fisheries; subject to Natural England being satisfied that the application additionally meets:
 - Regulation 53(9)(a) that there is no satisfactory alternative; and
 - Regulation 53(9)(b) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

A European Protected Species License is required before the commencement of any development that might impact on bats or their roosts.

Planning policy and Biodiversity Action Plan context

The National Planning Policy Framework (NPPF) is guidance for local planning authorities on the content of their Local Plans, but is also a material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. However, the government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9 remains valid.

The Natural Environment and Rural Communities (NERC) Act 2006, in particular Section 40, places a duty on public bodies to have regard to the conservation of biodiversity. This duty is guided by the habitats and species lists in Section 41 of the Act, within which seven bat species are included: barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared (*Plecotus auritus*), greater horseshoe (*Rhinolophus ferrumequinum*) and lesser horseshoe (*Rhinolophus hipposideros*) bats. These seven species are also listed as Priority Species within the UK Biodiversity Action Plan (UKBAP), (the UK Government's response to the Convention on Biological Diversity).

B Survey and site assessment

B.1 Pre-existing information on the bat species at the survey site.

A number of bats have been recorded within 2km of the site (obtained from the National Biodiversity Network (NBN)) (Table1). There are no records from within the site boundary.

Table 1. Bat records within 2km of the site (from NBN).

Common Name	Scientific Name	No of records within 5km of site
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	2
Brown long-eared bat	<i>Plecotus auritus</i>	1
Long-eared bat	<i>Plecotus spp.</i>	1
Myotis	<i>Myotis spp</i>	1
Whiskered bat/Brandt's bat	<i>Myotis mystacinus</i>	1
Natterer's bat	<i>Myotis nattereri</i>	1
Noctule	<i>Nyctalus noctula</i>	1

B.2 Status of the species

B.2.1 Bats found roosting within the site

Table 2. Bats observed roosting within the barn.

Common Name	Scientific Name	Local Status	National Status
Pipistrelle bat	<i>Pipistrellus spp.</i>	-	-

B.2.2 Records of foraging and/or commuting bats within the site

Table 2. Bats observed flying within the site boundary.

Common Name	Scientific Name	Local Status	National Status
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Common, widespread	Common, widespread

B.3 Objective(s) of survey

The bat survey was commissioned to:

- Determine whether or not bats were using roosts within the site;
- Determine what species of bat were present at the site;
- Determine what types of bat activity was occurring within the site;
- Determine what population levels (size and importance) were present at the site;
- Make an assessment of the potential impacts and effects of the proposed development on bats;
- Determine the legal implications of the proposed development; and
- Recommend appropriate mitigation measures to remove or reduce impacts

B.4 Survey area

The site proposed for development, Heath Barn (GR: SP351391), is situated on the southern side of the B4035 approximately 300m north of the junction with Pound Lane, 1km north of the village of Sibford Gower in Oxfordshire and 1.2km south of the village of Epwell (Figure 1). The site is situated at the head of a shallow valley and is surrounded by improved grassland with an associated network of hedgerows and treelines. There are a number of small areas of woodland within 2m of the site including Heath Plantation, a 2.3ha of mixed woodland approximately 0.8km north of the site and The Warren, a 2.5ha area of mixed woodland approximately 2km north-west of the site. There is a spring at the eastern edge of the site which feeds a stream flowing southwards towards Sibford Gower.

There are no protected areas within 2km of the site (magic.defra.gov.uk).

Barn (Photographs 1 - 4)

Type: Stone threshing barn and adjoining single-storey open-sided barn.

Roof: Gable roofs of threshing barn and open-sided barn covered with corrugated asbestos. No lining present.

Potential Bat Access Points: Openings under asbestos ridge covering (Photograph 5); openings in doors to enclosed ground floor room (Photograph 6) and hayloft (Photograph 7); openings under the end ridge tile at the south-eastern end of the threshing barn (Photograph 8); openings under the barge board along the edge of the south-east facing gable wall of the open-sided barn (Photograph 9); ventilation apertures in all sides of threshing barn (Photograph 10); gaps between roof and top of wall.

Bat Roosting Potential: Open roof void in threshing barn (Photograph 11) with open ridge cavity (Photograph 12); enclosed ground floor room in threshing barn (Photograph 13); open roof void in open-sided barn (Photograph 14) with enclosed ridge cavity; numerous deep crevices in the stones walls (e.g. Photograph 15).

B.5 Field Survey

B.5.1 Methods

Surveys were undertaken in accordance with current best practice guidelines, which include: Bat Mitigation Guidelines (Mitchell-Jones, 2004); The Bat Workers Manual (Mitchell-Jones & McLeish, 2004); and Bat Surveys: Good Practice Guidelines (Hundt, 2012).

Internal and External Inspection

On the 7th November 2011 the building was surveyed for potential roost sites and signs of bats. The survey utilised a ladder, a high-powered torch, binoculars and an endoscope. The external inspection involved looking for bat droppings on the ground, stuck to walls or roof tiles and on windows and sills and recording suitable entry and exit points. The internal inspection focused on those areas which may be suitable for roosting bats, such as ridge tiles, gable walls, joints and crevices in wood, crevices in walls as well as searching for bat droppings and feeding signs on the floors and other surfaces.

An additional internal and external inspection of the building was carried out on the evening of 7th May 2013.

The following criteria were used to determine roosting potential of the buildings.

Table 3. Description of roosting potential categories

Roosting potential	Criteria
Good	Buildings that have many areas suitable for roosting with a large number of potential access points. These are normally in sheltered locations, subject to low variation in temperature. Buildings with good potential could be used for a whole range of roosts including maternity roosts.
Moderate	Buildings with a smaller number of areas suitable for roosting, but still supporting features that could be attractive to bats and potentially support maternity roosts.
Limited	Buildings with limited roosting opportunities. These may be in locations that are subject to wide temperature fluctuations and drafts. They could be used as occasional or transient roosts, but are unsuitable for maternity roosts. Buildings that would otherwise be moderate to good potential but have reduced value due to other factors such as exposed location, separation from nearby foraging habitat, or presence of strong streetlight.
Low	Buildings that have no obvious places for bats to roost, but could be used on a sporadic or occasional basis for feeding or solitary day roosting.
Negligible	Buildings which appear unsuitable for roosting bats due to clear lack of roosting spaces such as voids etc and/or absence of suitable access points. Such buildings in practice are rare.

Nocturnal Surveys

On the evening of 7th May 2013 and at dawn on 16th May 2013 observations of bat activity were made by Jon Russ and Steve Russ. One surveyor was equipped with a Pettersson D-980 time expansion bat detector connected to an iRiver H120 recorder and the other was equipped with a Pettersson D240x bat detector connected to an iRiver H120 recorder. Both detectors are capable of scanning in heterodyne mode and recording in time expansion mode. Calls were analysed using the Avisoft-SASLAB v4.15 software package.

B.5.2 Timing

On 7th November 2011 the building was surveyed internally and externally for signs of bats. Survey time was 1 ¾ hours. On 7th May 2013 the internal and external survey took ¾ hour.

Table 2. Timings of nocturnal surveys

Survey Date	Survey Start Time	Survey End Time
7 th May 2013	20:15	22:15
16 th May 2013	03:45	04:45

B.5.3 Weather conditions

Table 3. Weather conditions during the nocturnal surveys

Survey Date	Temperature at Start of Survey (°C)	Temperature at End of Survey (°C)	Cloud Cover (%)	Wind	Rain
7 th May 2013	16	14	10	None	None
16 th May 2013	5	6	0	None	None

B.5.4 Personnel

The surveys were carried out by Jon Russ and Steve Russ.

Dr. Jon Russ is a terrestrial and behavioural ecologist with a specialist interest in bats. As owner of Ridgeway Ecology and through his academic research and work with the Bat Conservation Trust he has managed, designed and carried out large and small scale bat surveys and bat monitoring programmes in the UK and in the tropics. He has extensive experience of United Kingdom and European Union legislation regarding bats and has been a fully licensed bat worker for over 15 years, holding bat conservation, education and scientific licences for radio-tracking, mist-netting, ringing, harp-trapping, ultrasonic playback and DNA sampling. His publication record includes a large number of articles in scientific journals as well as other publications including the widely used book, "The Bats of Britain and Ireland: Echolocation, Sound Analysis, and Species Identification", "Review of ASSI designation for bats in Northern Ireland", "The Northern Ireland Bat Action Plans" which he coordinated and delivered and more recently "British Bat Calls: A Guide to Species Identification". In addition, Jon has a great deal of experience of avoidance, mitigation and compensation measures relating to bats and development.

Steve Russ has been involved with bats since 2004 having worked with Ridgeway Ecology since 2008. He has held a bat 'surveyors' licence since 2010 and obtained an MSc in Conservation Ecology from Oxford Brookes in 2010.

C Results

C.1 Surveys

C.1.1 Internal and External Surveys

7th November 2011

Four medium-sized bat droppings were identified widely scattered on the machinery stored within the threshing barn (e.g. Photograph 16). The droppings were likely to have been produced within the past 6 months.

A single pipistrelle bat was identified roosting in a deep stone crevice within the north-east facing wall of the threshing barn (Photographs 17 and 18).

7th May 2013

There was no evidence of bats within the barn except for two bat droppings within the crevice identified on 7th November 2011 containing a pipistrelle bat.

C.1.2 Nocturnal Surveys

7th May 2013 – Dusk Survey

Surveyors were positioned at the western and eastern corners of the barn. A single common pipistrelle was frequently observed foraging along the leeward sides of the barn (south-east and south-west). No bats were observed emerging from or entering the building (Tables 4 and 5).

Table 4. Summary of bat activity within the site boundary – surveyor positioned to west of barn with D980 detector.

Time	Location	Species
21:15-21:26	One individual heard and seen foraging from NW to SW continuously	<i>Pipistrellus pipistrellus</i>
21:28	One individual heard and seen foraging	<i>Pipistrellus pipistrellus</i>
21:30-22:06	One individual heard and seen foraging along SW side of barn	<i>Pipistrellus pipistrellus</i>

Table 5. Summary of bat activity within the site boundary – surveyor positioned to east of barn with D240x detector.

Time	Location	Species
21:17	Single individual heard and seen briefly foraging along east end of barn	<i>Pipistrellus pipistrellus</i>
21:25	Single individual heard and seen briefly foraging along east end of barn	<i>Pipistrellus pipistrellus</i>
21:34	Single individual heard briefly foraging	<i>Pipistrellus pipistrellus</i>
21:42	Single individual heard briefly foraging	<i>Pipistrellus pipistrellus</i>
21:51	Single individual heard briefly foraging	<i>Pipistrellus pipistrellus</i>

16th May 2013 – Dawn Survey

Surveyors were positioned at the northern and southern corners of the barn. A single common pipistrelle was heard twice within the vicinity of the barn. No bats were observed emerging from or entering the building (Table 6).

Table 6. Summary of bat activity within the site boundary – surveyor data combined.

Time	Location	Species
04:17	One individual heard briefly to the north of the barn	<i>Pipistrellus pipistrellus</i>
04:19	One individual heard briefly to the north of the barn	<i>Pipistrellus pipistrellus</i>

C.2 Interpretation and evaluation of survey results

C.2.1 Presence/absence

A single pipistrelle bat was observed roosting within a crevice in the north-east stone wall of the threshing barn on 7th November 2012. It was not possible to determine the species (i.e. *Pipistrellus pipistrellus*, *Pipistrellus pygmaeus* or *Pipistrellus nathusii*).

It was not possible to determine which species of bat produced the droppings observed within the threshing barn although medium-sized droppings identified within barns are often produced by brown long-eared bats (*Plecotus auritus*) or Natterer's bats (*Myotis nattereri*).

C.2.2 Population size class assessment

A single pipistrelle bat was observed roosting within a stone crevice in the external wall of the barn. The droppings inside the barn were likely to have been produced by a single individual. No bats were observed emerging from or entering the building during the nocturnal surveys.

C.2.3 Site status assessment (combining quantitative, qualitative, functional and contextual factors)

The barn is considered to be of **moderate bat roosting** potential.

The building is relatively isolated being surrounded by an area of improved grassland. The barn is located approximately 40m away from the nearest hedgerow which some species of bat may be reluctant to cross, particularly during dusk and dawn when bats emerge from, or enter, roost sites. In addition, the corrugated asbestos roof has a propensity to rapid temperature fluctuations, bats tending to prefer more stable conditions. However, there are a number of potential roosting areas for bats, most notably within the deep crevices in the stone walls, of which there are a large number. These crevices are suitable for different species bat all year round including during the maternity season, the mating/swarming period and the hibernation period.

The bat roost within the crevice in the external stone wall of the barn is probably a mating roost, occupied by a single male pipistrelle bat and/or a prehibernation/hibernation roost occupied by a single bat.

No bats were observed within the barn during the nocturnal surveys and it is likely that the droppings observed within the barn were produced by a single brown long-eared bat, or possibly a Natterer's bat, using the building for a very short period of time.

C.2.4 Constraints (factors influencing survey results)

The floor of the barn was covered with a mixture of straw, mud and pigeon droppings making it difficult to search for bat droppings.

D Conclusions and Recommendations

A bat survey of Heath Barn carried out in November 2012 identified a single pipistrelle bat roosting within a crevice within the external stone wall and a four bat droppings scattered widely within the barn. Nocturnal surveys, carried out in May 2013, recorded common pipistrelles foraging within the vicinity of the barn but not emerging from, or entering, any roosts sites. The survey evidence, therefore, demonstrates that a single common pipistrelle bat has been utilising a crevice in the external stone wall of Heath Barn as a mating roost and/or a pre-hibernal/hibernal site but that no further potential roosting features are currently being used by bats (see C.1.1 and C.2).

Planning Consent was granted by Cherwell District Council on 29th March 2012 to convert the barn to a dwelling (Planning Ref: 12/00141/F). As the existing bat roost will not be destroyed by this work (as it can be retained *in situ*) and as potential disturbance to the roost will be minimal it is not considered necessary to obtain a European Protected Species licence from Natural England to allow work to proceed (Mitchell-Jones 2004). However, the following mitigation measures must be adhered to in order to reduce the impacts of the proposed work at Heath Barn, Sibford Gower on bats and their roost sites:

- As only a single bat of a common species was identified during the surveys, work can commence at any time (Mitchell-Jones 2004).
- Before commencing any work on site, builders and contractors, will be inducted by a licensed bat ecologist to make them aware of the possible presence of bats, their legal protection and of working practices to avoid harming bats as well as informing them of the location of the identified bat roost.
- A licensed ecologist will carry out an endoscopic inspection of the stone crevices within the walls of the barn prior to repointing or demolition to ensure that bats are not present.
 - Any bat roosts identified (including the described pipistrelle roost (Figure 2)) will be retained. If it is not possible to do so it will be necessary to obtain a European Protected Species licence from Natural England to carry out destructive work.
 - Any crevices within the stone walls which cannot be fully inspected and which may provide suitable roosting habitat for bats will also be retained. If it is not possible to retain these crevices they will be chalk-marked and fitted with one-way excluders consisting of a polythene flap. This will remain in place over 4 consecutive days and nights where (night-time) temperatures have not dropped below 8°C. The cavity will then be checked again immediately prior to being infilled.
- Roosting opportunities for bats within the site boundary will be further increased by:
 - Incorporating a Schwegler 1FR bat tube into the south-facing gable wall of the proposed garage.
 - Providing bats access to two crevices between the roof tiles, laths and lining on the north-west and south-east facing roof pitches of the garage approximately 0.2m below the ridge (Figure 3, Appendix 1 – Note that access into the roof void is not required). Each crevice will consist of a cavity of approximately 1.5m in length between laths. A traditional bitumastic roof lining (e.g. 1F Slater's/Roofer's Felt) will be placed over the top of the modern breathable membrane (if used) within this crevice as bats become entangled in breathable membranes. A wooden baton will be installed at each end of the crevice to prevent bats moving onto the breathable membrane (if used).
- External lighting within the site boundary will consist of low level lamps with directional shrouding/shields to prevent unnecessary light spill above 2/3 of the way up the walls (between ground level and the wall plate). Floodlighting (where used) will consist of motion sensor lamps fitted with a short timer.
- Once work has been completed the licensed ecologist will inspect the new and reinstated bat roosting features to ensure that they are suitable for use by bats.

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Figures

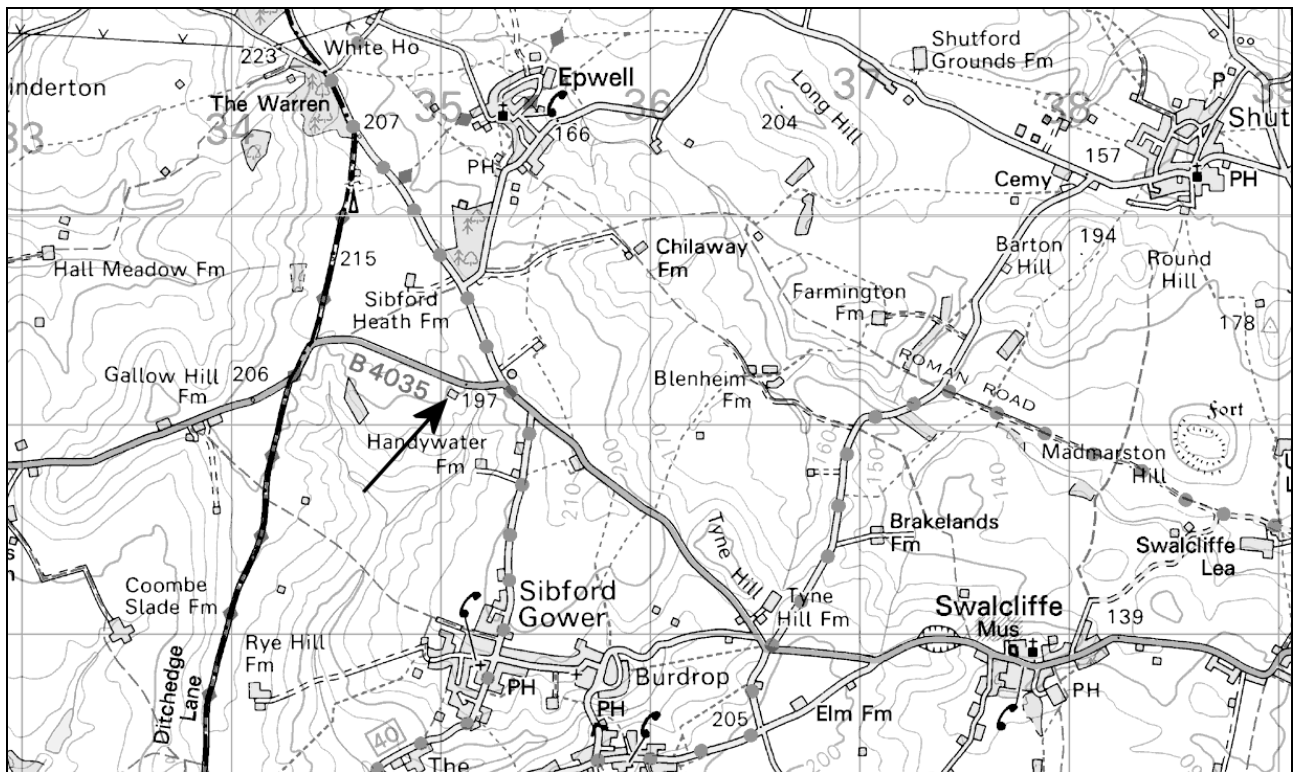


Figure 1. Location of the site (arrowed). 2006. Crown Copyright; Ordnance Survey. Scale 1: 50 000

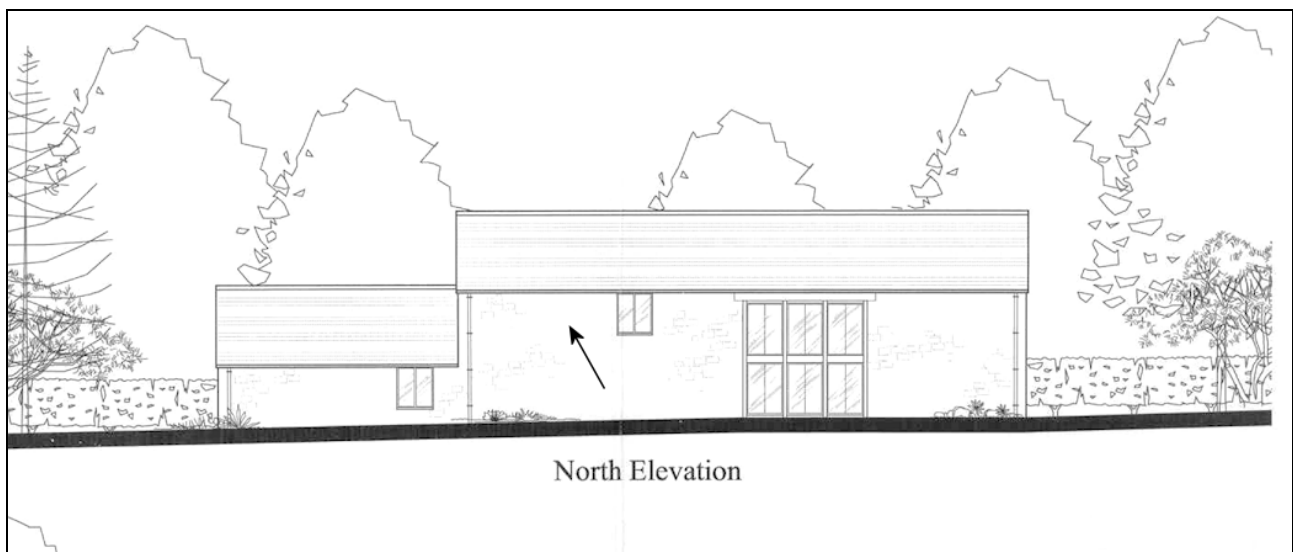


Figure 2. Proposed north elevation showing the location of the crevice in the stone wall of the converted barn (from Stable Architecture Drawing No: 5353-03).

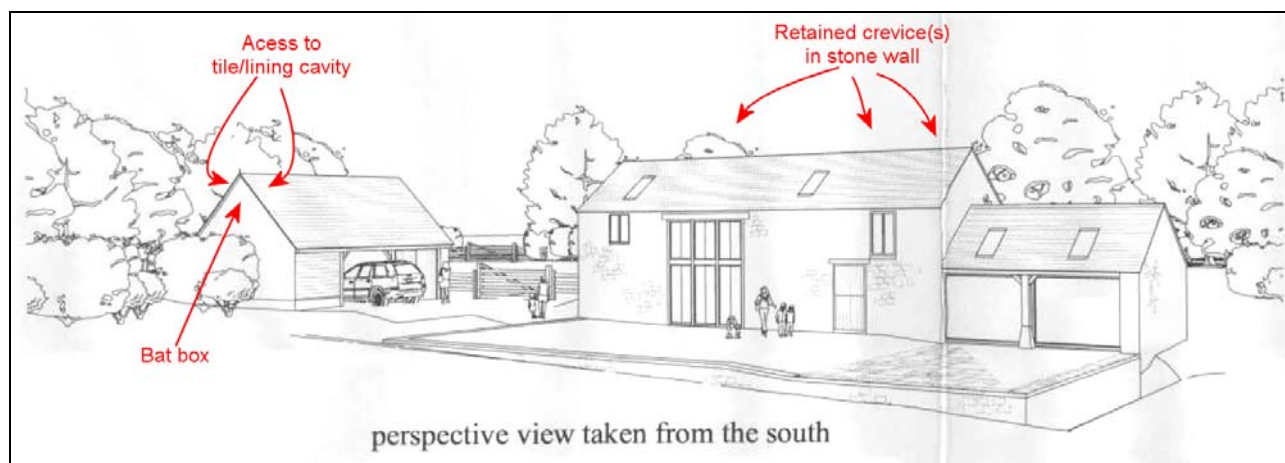


Figure 3. Proposed perspective view of the site showing the location of the proposed bat rooting features (from Stable Architecture Drawing No: 5353-03).

Photographs



Photograph 1. The north-east and north-west elevations of the barn



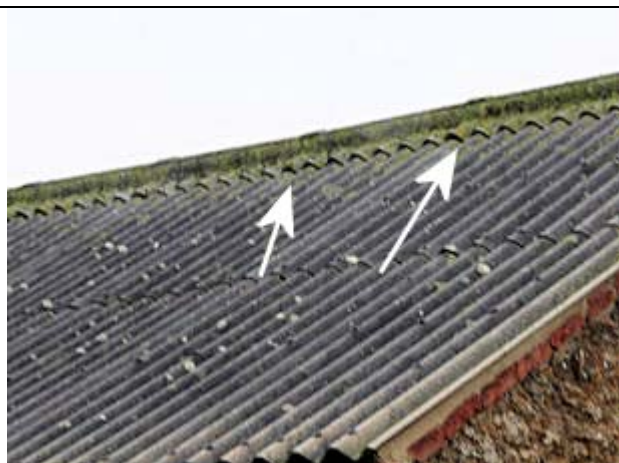
Photograph 2. The north-west and south-west elevations of the barn



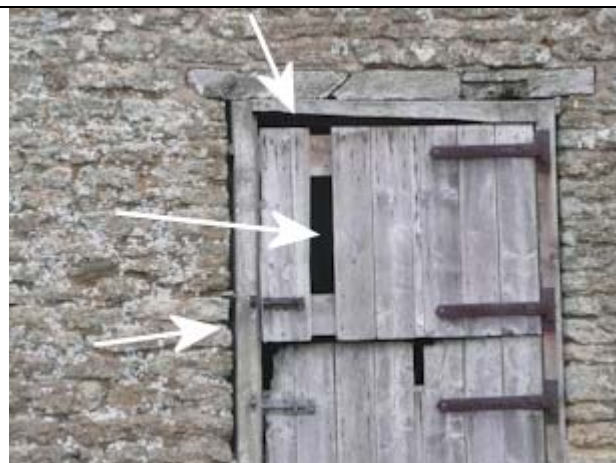
Photograph 3. The south-east and south-west elevations of the barn



Photograph 4. The north-east and south-east elevations of the barn



Photograph 5. Example of openings under the ridge covering



Photograph 6. Openings in the door on the south-west side of the threshing barn



Photograph 7. Openings in and around the upper door on the south-west side of the threshing barn



Photograph 8. Openings under the end ridge tile at the south-eastern end of the threshing barn



Photograph 9. Openings under the barge board along the edge of the south-east facing gable wall of the open-sided barn



Photograph 10. Example of vent in the threshing barn



Photograph 11. Open roof void within the threshing barn



Photograph 12. Open ridge cavity within the threshing barn



Photograph 13. Enclosed ground floor room at south-eastern end of threshing barn



Photograph 14. Open roof void in open-sided barn with enclosed ridge cavity



Photograph 15. Example of deep crevice in the stone walls within the barns



Photograph 16. Single bat dropping on machinery within the threshing barn



Photograph 17. Location of deep cavity containing a single pipistrelle bat in the north-east facing external wall of the threshing barn (see also Photograph 17)



Photograph 18. Close-up of deep cavity containing a single pipistrelle bat in the north-east facing external wall of the threshing barn

Appendix 1