ELLENDALE
ENVIRONMENTAL

Strattons, Highway
Bat Survey and Assessment

For Chrissie Roberts

17th September 2024

South Office
41 Esmead
Chippenham, Wiltshire
SN15 3PR

North Office
292 Portobello High Street
Edinburgh
EH15 2AS

0131 563 9326
info@ellendale-environmental.co.uk

Version

VERSION	DATE	AUTHOR	REVIEWED	APPROVED
CIC v1.0	13/09/24	Stewart Parsons	Emma Parsons	17/09/24

Disclaimer

Copyright © Ellendale Environmental Limited. All rights reserved.

This report has been produced by Ellendale Environmental Limited within the terms and conditions of the contract with the client and taking account of the resources devoted to it by agreement with the client. It has been prepared for the sole use of the client and their professional advisors.

Ellendale Environmental Limited accepts no responsibility for any use of or reliance on the contents of this report by any third party.

The report, and the information contained in it, is intended to be valid for a maximum of 12 months from the date of the survey, providing no significant alterations to the site have occurred.

Contents

1. Introduction....4
1.1 Commission....4
1.2 Site Details....4
1.3 Bat Conservation....5

2. Methodology....8
2.1 Overview....8
2.2 Bat Survey Licence....9
2.3 Survey Objectives....9
2.4 Field Survey Methodology....10
2.5 Constraints....11

3. Results....12
3.1 Physical Bat Survey....12
3.2 Activity Surveys....15

4. Conclusions....19
4.1 Conclusion....19
4.2 Main Recommendations....21
4.3 Mitigation/Compensation....22

Appendix 1 – Extract from the Bat Mitigation Guidelines....23

1. Introduction

1.1 Commission

Ellendale Environmental Limited was commissioned by Chrissie Roberts to undertake bat surveys and an assessment for a residential property ('the target building') at Strattons, Highway, Hilmarton, SN11 8SR ('the site'). It is proposed to install solar panels on the roof of the target building ('the proposed works').

1.2 Site Details

The site is located at Highway Common to the west of Hilmarton, a village and civil parish in North Wiltshire. The village lies on the A3102 between the towns of Calne and Wootton Bassett, and two miles south of Lyneham, at OS grid reference SU 04200 74687.

Figure 1: Site location



Reproduced from Ordnance Survey Mapping Map Explorer 157 Scale 1:25000 by permission of Ordnance Survey on behalf of The Controller of His Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100054247.

1.3 Bat Conservation

British Bats

There are 18 species of bats resident in Britain, 17 of which are known to breed. These are from two families, namely the Rhinolophidae (the two horseshoe bat species) and the 15 species of vesper/evening bats (the Vespertilionidae). All British bats are insectivorous and locate their prey using ultrasonic calls through a biological system known as echolocation.

During summer months, female bats form nursery colonies in trees and buildings, where they raise infants. In the winter, males and females hibernate in trees, buildings and underground structures.

Conservation Status of British Bats

The general consensus in Britain and Europe is that virtually all bat species are declining and are vulnerable. Our understanding of population status is poor, as there is very little historical data for most bat species. Certain species, such as the horseshoe bat, are better understood and have well documented contractions in range and population size.

Given this general picture of decline, the UK Government (within the UK Biodiversity Action Plan) has designated eight species of bats as priority species (these being soprano pipistrelle, common pipistrelle (Wales only) greater and lesser horseshoe bats, barbastelle, Bechstein's, noctule and brown long-eared bat). These plans provide an action pathway whereby the maintenance and restoration of former population levels are envisaged.

Legal Status of British Bats

All bats and their roosts in England were originally protected under the Wildlife & Countryside Act 1981. Subsequent amendments to the legislation for England (and Wales) has removed bats from most of the provisions of the Act; however, it remains an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; and/or

- Intentionally or recklessly obstruct access to any structure or place that a bat uses for shelter or protection.

All British bat species are listed in Annex IV of the EC Habitats Directive and are fully protected through The Conservation (Natural Habitats, &c.) Regulations 1994. All bat species found in England are classed as European protected species. They receive full protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

These regulations make it an offence to:

- Deliberately capture, injure, or kill a bat;
- Harass a bat or group of bats;
- Disturb a bat in a roost (any structure or place it uses for shelter or protection);
- Disturb a bat while it is rearing or otherwise caring for its young
- Obstruct access to a bat roost or otherwise deny an animal use of a roost;
- Disturb a bat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species; and/or
- Disturb a bat while it is migrating or hibernating.

The legislation, although not strictly affording protection to foraging grounds, does protect bat roost sites. Bat roosts are protected at all times of the year, regardless of whether or not bats are present at the time.

It's also an offence to:

- Damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly); and/or
- Keep, transport, sell or exchange, or offer for sale or exchange any wild bat (or any part or derivative of one) obtained after 10th June 1994.

Where development is proposed that would result in an offence under the Habitats and Species Regulations, a European Protected Species (EPS) licence needs to be granted by Natural England (NE) to permit an act that would otherwise be unlawful. This provides for a specific derogation from the legislation, to prevent a legal infringement occurring.

To obtain an EPS licence for development it must be demonstrated that the purpose of the act to be licensed is for:

- *"Preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment"* (Regulation 55(2)(e)).

In addition, NE will not grant an EPS licence unless they are satisfied that:

- *"There is no satisfactory alternative"* (Regulation 55(9)(a)); and
- *"The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range"* (Regulation 55(9)(b)).

2. Methodology

2.1 Overview

Survey work undertaken in relation to a proposed development needs to be conducted under a scientific/conservation licence issued by, in this case, NE. The work is normally conducted by an environmental consultant on the behalf of the developer and the consultant will advise on the necessary course of further action with respect to licences, mitigation and compensation measures. A number of recognised survey techniques are available to the consultant, such as:

- Natural England guidelines (A.J. Mitchell-Jones [2004], *Bat Mitigation Guidelines*, English Nature. ISBN 1 85716 781 3), which provide generic technical advice on bat mitigation; and
- Hundt L (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 4th Edition, Bat Conservation Trust, London. ISBN-13: 978-1-872745-96-1.

The developer must:

- Demonstrate that adequate surveys have been undertaken to establish the presence or absence of bats, to predict the potential impact on them, their resting sites or breeding roosts;
- If bats or their roosts are discovered, bring proposals forward that will integrate provision for bats into any design that will compensate and mitigate for any impact during development; and
- Provide sufficient survey information that will support a licence application under the Habitats Directive should bats be discovered.

Where bat species are using a site, it will be necessary to mitigate the impacts of the development upon the population(s). These would include measures that remove or reduce any damaging effects on the animals or their roosts. In most cases a package of compensation measures will be required to accommodate any loss of breeding or resting-places, and the timing of works will need to be synchronised with the life-cycles of the effected species.

This collective package of mitigation and compensation measures should allow the conservation status of the animals to be at least maintained by the development. With careful thought, the conservation status may even be enhanced by development. This is usually most easily achieved by early ecological input.

In the case of sites where bats are present, a development licence from NE will be required to conduct works affecting bats.

2.2 Bat Survey Licence

The survey team was led by Christopher Parsons, Ecologist at Ellendale Environmental. Christopher holds a bat survey licence (Bat Survey Class Licence CL18 (Bat Survey Level 2), registration number CLS-2019-42561), with respect to the Conservation Regulations 1994. The licence is valid for all counties of England, valid until June 2025. Christopher has over 10 years' professional experience of undertaking ecological surveys and working with bat species across the UK.

The survey was assisted by Christopher Rawlins, Steven Warner and Barry Parsons who have over three years' experience of undertaking bat activity surveys.

2.3 Survey Objectives

On the basis of the brief provided by the client, Ellendale Environmental conducted survey work to fulfil the following needs:

- Obtain baseline information on the habitat features suitable for bat species;
- Determine the presence/likely absence of bat species and any activity at or near the target building; and
- Determine the type, extent and pattern of detected usage.

In practice this was achieved by undertaking dusk emergence/activity and dawn re-entry/activity surveys. Each surveyor used a mini time-expansion bat detector (Pettersson D 240x) linked to a portable 'Edirol' digital recorder (Edirol R-07HR).

In addition, ORDRO 4K Camcorder Video InfraRed Night Vision Cameras and a pair of Nightfox Red HD Infrared Night Vision Goggles were used during the surveys, along with Anabat swift multi-spectrum bat detectors.

2.4 Field Survey Methodology

The following methodology was used:

1] A physical internal/external site inspection of the target building was undertaken on Saturday 3rd February 2024. The internal and external building was searched for signs of bats and evidence of them roosting in the building.

Table 1: Survey weather conditions for physical survey

SURVEY DATE	TEMPERATURE (°C)	WIND SPEED (MPH)	CLOUD COVER/PRECIPITATION
03/02/24	4.5	1.0 Avg. 1.9 Max.	60% could cover, cold with an occasional light breeze.

All suitable features were assessed externally and internally. A telescopic surveyor's ladder was used to gain access to various points and a CLU-10 searchlight was used to search dark areas. A Visual Optics VO36-10ww Endoscope was utilised to assist inspection of internal spaces.

The physical search included a search for live animals and a search for other signs that give an indication of past or present occupancy.

In the case of bats, typical indicators include droppings (which are characteristic and can often be speciated), signs of staining, characteristic odours, and accumulations of prey items.

2] Two dusk emergence/activity bat detector surveys were undertaken for the target building on Saturday 10th May and Friday 7th June 2024. The surveys commenced 30 minutes before sunset (sunset was at approximately 20:46 and 21:22 respectively) and completed 90 minutes after sunset, when all bats will normally be expected to have exited their roost sites.

3] One dawn re-entry survey was undertaken on Friday 14th July 2024. The survey commenced 90 minutes before sunrise (sunrise was at approximately 05:09).

Weather was not a limiting factor in the activity surveys. The conditions are summarised in Table 1.

Table 2: Survey weather conditions for activity surveys

SURVEY DATE	TEMPERATURE (°C)	WIND SPEED (MPH)	CLOUD COVER/PRECIPITATION
10/05/24	Start 21.5 End 16.6	Avg. 0.0 Max. 0.0	50% cloud cover, warm and dry and still.
07/06/24	Start 16.2 End 13.2	Avg. 0.7 Max. 0.1	50% cloud cover, warm and dry and still.
14/07/24	Start 15.6 End 12.8	Avg. 0.0 Max. 0.0	30% cloud cover, warm, dry and still.

2.5 Constraints

The surveys were undertaken at an optimal time of year for bat activity and in suitable weather conditions.

Whilst no biological survey can guarantee that all cues and signs of protected or notable species will be recorded, Ellendale Environmental is confident that all key fauna present in the survey area during the survey times were noted.

Although the survey timings are applicable for most of the UK, they vary according to the geographic location of the site. Optimal timing may also vary from year to year depending on the onset of each season. Outdoor surveys are weather-dependent and should be undertaken only in suitable weather conditions.

3. Results

3.1 Physical Bat Survey

A daytime physical survey of the target building was undertaken on Saturday 3rd February 2024 and full access was provided to the target building for the survey. The target building is located at Highway Common to the west of Hilmarton, in a rural area surrounded by agricultural land.

The target building comprises an original two storey structure comprised of traditional stone wall with wooden cladding. Externally the walls of the building were found to be in a good condition with no gaps or crevices in which bats could gain access for roosting. The walls were found to be rendered and no evidence of bat activity (such as droppings or feeding remains) was found.

Photograph 1: showing a view of the target building



The windows and doors of the building were found to be in good condition with no gaps where bats could gain access to the internal spaces for roosting. No evidence of bat activity (such as droppings or feeding remains) was found around the doors or windows, and there was no evidence of bat activity within the main living areas of the building.

The external roof structure of the building was found to be in a good condition; however, some small gaps were noted in the tiles and lead/zinc flashing that would allow bats to access the internal spaces.

Photograph 2: showing a view of the roof of the building



The roof is constructed from a modern timber frame with bitumen breathable liner present between the loft space and the external tiles. The entire loft space is open and in use by bats, with scattered droppings found throughout; however, no bats were identified at the time of the survey.

The building is therefore considered to be a bat roost and visual analysis of the droppings suggests that more than one species of bat is present.

Photograph 3: showing a view of the loft space and membrane



Photograph 4: showing bat droppings within the target building



3.2 Activity Surveys

The emergence/activity surveys were conducted in May, June and July 2024 during the optimum survey season for bats (which is March to September) and during the maternity period for bats. The weather conditions were not limiting and were characterised by steady temperatures above 10˚C and light winds.

Each surveyor was located in a static position to cover all aspects of the target building during the survey.

Figure 2: showing surveyor locations for activity surveys



Dusk Survey, 10/05/24

Bat activity was first recorded at 21:16, 30 minutes after sunset, when a common pipistrelle bat was recorded to the north-east of the building; however, the bat was not seen and therefore did not emerge from the building.

Two common pipistrelle bats were recorded emerging from the building via wooden slats on the south-eastern corner of the building at 21:17 and 21:18. No other bats were recorded emerging from the building during the survey.

A serotine bat was recorded flying along the north-eastern side of the building entering from the east and flying south-east along the boundary of the site at 21:22.

Table 3: Bat activity survey results, 10/05/24

Time	Observations
21:16	A common pipistrelle bat was recorded to the north-east of the building but was not seen.
21:17	A common pipistrelle bat emerged from the wooden slats on the south-eastern corner of the building. The bat flew south away from the site.
21:17	A common pipistrelle bat was recorded to the north-east of the building entering from the east and did not emerge from the building.
21:18	A common pipistrelle bat emerged from the wooden slats on the south-eastern corner of the building. The bat flew south away from the site.
21:22	A serotine bat was recorded flying along the north-eastern side of the building entering from the east and flying south-east along the boundary of the site.
21:29	A common pipistrelle bat was recorded foraging along the hedgerow and trees to the east of the building.
21:30	A common pipistrelle bat was recorded to the north of the building but was not seen. The bat is believed to have been foraging amongst the trees behind the surveyor.
21:31	A common pipistrelle bat was observed and recorded foraging to the south-east of the building over the garden area and around the trees to the east.
21:31	A common pipistrelle bat was observed and recorded foraging to the north and west of the building (along house line back over garden). The bat did not emerge from the building.
21:33	A common pipistrelle bat was observed and recorded foraging to the north and west of the building (along house line back over garden). The bat did not emerge from the building.
21:34	A common pipistrelle bat was observed and recorded foraging to the south-east of the building over the garden area and around the trees to the east.
21:35	A common pipistrelle bat was observed and recorded foraging to the south-east of the building over the garden area and around the trees to the east.
21:35	A common pipistrelle bat was observed and recorded foraging to the north and west of the building (along house line back over garden). The bat did not emerge from the building.
21:37	A common pipistrelle bat was observed and recorded foraging to the north and west of the building (along house line back over garden). The bat did not emerge from the building.
21:38	A common pipistrelle bat was observed and recorded foraging to the south-east of the building over the garden area and around the trees to the east.

No other species of bat was recorded during the survey and bat activity was noted to be low during the survey.

Dusk Survey, 07/06/24

Bat activity was first recorded at 20:50, 28 minutes after sunset, when a common pipistrelle bat was recorded to the north-east of the building; however, the bat was not seen and therefore did not emerge from the building.

A common pipistrelle bat emerged from the north-eastern corner of the building from under the wooden slats below the security light at 21:58. No other bats were recorded emerging form the building during the survey.

Table 4: Bat activity survey results, 07/06/24

Time	Observations
20:50	A common pipistrelle bat was recorded at the north-west corner of the building but was not seen. The bat did not emerge from the building. The bat is believed to have been foraging amongst the trees behind the surveyor.
21:38	A common pipistrelle bat was recorded and observed emerging from the north-east corner of the building from under the wooden slats below the security light. The bat flew east away from the building. Social calls were also recorded.
21:48	A common pipistrelle bat was recorded and observed entering the site form the north and foraging around the garden area of the building to the east before flying south.

No other species of bat was recorded during the survey and bat activity was noted to be low during the survey.

Dawn Survey, 14/07/24

Bat activity was first recorded at 04:00, one hour and nine minutes before sunrise, when a common pipistrelle bat was recorded to the north-east of the building but was not seen.

A serotine bat was recorded entering the site at 04:03 and foraging to the west of the building, before returning to roost in the building at 04:05 around the wooden slats on the south-eastern corner of the building.

Two bats were observed between 04:04 and 04:17 emerging from and returning to roost in the northern gable end of the building under gables close to the top of the roof. The bats were not heard echolocating and were not recorded despite recordings being taken. From their flight pattern and behaviour, they are assessed as brown long-eared bats, droppings of which were identified in the loft space of the building.

Table 5: Bat activity survey results, 14/07/24

Time	Observations
04:00	A common pipistrelle bat was recorded to the north-east of the building but was not seen.
04:03	A serotine bat was observed and recorded entering the site from the east and continued to the west at the northern end of the building to some trees.
04:04	Two bats were recorded emerging from the northern gable end of the building however they were not recorded by the detectors and were not echolocating. From their flight pattern and behaviour, they are assessed as brown long-eared bats. The bats returned to the building in the same location.
04:05	A serotine bat was observed swarming around the wooden slats on the south-eastern corner of the building before returning to roost.
04:07	Two bats were recorded emerging from the northern gable end of the building however they were not recorded by the detectors and were not echolocating. From their flight pattern and behaviour, they are assessed as brown long-eared bats.
04:17	Two bats were observed entering the building under gables near top of roof on the northern end of the building. No echolocation was recorded and from their flight pattern and behaviour, they are assessed as brown long-eared bats.

No other bat species were recorded during the survey and no further bats were recorded after 04:17.

4. Conclusions

4.1 Conclusion

A daytime physical survey of the target building was undertaken on Saturday 3rd February 2024 and full access was provided to the target building for the survey.

Two dusk emergence/activity surveys and one dawn re-entry/activity survey were conducted in May, June and July 2024 for the target building, within the optimum survey window for bats and within the maternity period for bats.

Two common pipistrelle bats were recorded emerging from the target building, from the wooden slats on the south-eastern corner of the building during the first activity survey and one common pipistrelle emerged from the north-eastern corner of the building from under the wooden slats below the security light during the second dusk survey. No common pipistrelle bats were observed or recorded returning to roost in the building during the dawn survey.

A serotine bat was recorded flying along the north-eastern side of the building entering from the east and flying south-east along the boundary of the site during the first dusk activity survey and a serotine bat was observed and recorded returning to roost in the building around the wooden slats on the south-eastern corner of the building during the dusk survey.

Two bats were observed during the dawn surveys, between 04:04 and 04:17, emerging from and returning to roost in the northern gable end of the building. The bats were not heard echolocating and were not recorded despite recordings being taken. From their flight pattern and behaviour, they are assessed as brown long-eared bats, droppings of which were identified in the loft space of the target building.

Figure 3: showing bat access/egress locations



Common pipistrelle bats emerged from the building

Serotine returned to roost

Figure 4: showing bat access/egress locations



Brown long-eared bat emerged from and returned to roost in the building

From the evidence collected on site, the target building is assessed as providing a day roost for bat species. The level of droppings identified within the loft space of the target building suggests that it is suitable to provide a maternity roost for bat species and is likely to provide conditions for an all year roost.

The overall relative nature conservation value is judged as **Medium** on the sliding scale of relative importance as described in the Bat Mitigation Guidelines.

The suggested level of proportionate mitigation is "*Timing constraints. More or less like-for-like replacement. Bat not to be left without a roost and must be given time to find a replacement. Monitoring for 2 years preferred*".

Table 6: Summary of bats

Species	Estimated Number	Roost Locations
Common pipistrelle	0-5, Low population	Under wooden cladding.
Serotine bat	0-5, Low population	Under wooden cladding.
Brown long-eared bat	0-5, Low population	In loft space access via the northern gable end of the building.

4.2 Main Recommendations

It is proposed to install solar panels on the roof of the building and therefore the loft space of the building and any access/egress location will remain intact by the proposed works. No bats were observed or recorded emerging from the roof tiles and therefore it is not considered that any access/egress will be blocked by the works.

Disturbance to the roost will occur through the installation of the solar panels and therefore the following recommendations are made:

- A development licence for bats will be required from NE. The licence will provide a legal basis by which the works can proceed with respect to the bat presence. It will be necessary to provide a 'Method Statement' and a 'Mitigation and Compensation Plan' to a prescribed format to support this application. This report will provide much of the information that will be required to go into the licence application.

- It is recommended that mitigation features should be employed that will allow bat species access to suitable roosting habitat.
- It is recommended that the works on the building are restricted to a suitable time when bats will be least disturbed by the works.
- Any roof strip must be supervised by an licenced bat ecologist and if roosting bats are encountered, the supervising bat ecologist will remove the bats to a pre-agreed bat roost/bat box.
- Contractors should be given a briefing/toolbox talk and have a clear understanding that they must halt all works and call the supervising bat ecologist if bats are encountered within the building.

4.3 Mitigation/Compensation

The mitigation/compensation scheme must be proportionate to the nature conservation value of the bat roost present in the building. It is considered that the bats present can be protected from harm or disturbance during the works and that the Continued Ecological Functionality of the building can be maintained.

Mitigation features must be incorporated into the site that will continue to support roosting bats into the future, namely:

- At the outset of the works, two non-breeding bat boxes (Schwegler 2F or similar of Woodcrete construction) will be installed in suitable trees adjacent to the target building. The boxes will be installed as soon as possible in advance to works commencing to allow bats time to locate the new roosts and to ensure that a suitable receptor is present, into which any bats found during the proposed works can be relocated.
- Where new roofing felt is required it shall be bitumastic felt to British Standard BS747. Tyvek and other breathable membranes are not appropriate and must not be used in bat roosts.
- Monitoring of the success of the bat mitigation is to be employed for two years, as per the Bat Mitigation Guidelines, to measure its effectiveness.

Appendix 1 – Extract from the Bat Mitigation Guidelines

Figure 4 of Bat Mitigation Guidelines:

