



## Bat Roost Survey Report

# Flemings Hall

Issued: October 2023

Client: Nicolas and Amy Philippe c/o Fieldwork Architects

Job number: 2023-002

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

The advice has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct.

The assessment is only valid for a period of 12 months from the survey date. If the scope of works or timing of the project is altered the advice given in this report may not be valid.

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## Executive Summary

360 Ecology Ltd was commissioned to carry out bat roost surveys at buildings B1 – B5, Flemings Hall, which is located at Hall Road, Bedingfield, Suffolk IP23 7QF (Grid Reference TM 19249 67850) in order to support a planning application for the site. The application site comprises a detached thatched barn (B1), residential outbuilding (B2) and three joined outbuildings – storage / cart lodge / log store (B3 / B4 / B5), with a lawned garden in the courtyard of the buildings, surrounded by hedgerows, hardstanding and a moat to one side. The proposed development is for conversion of B1 – B5 into holiday rentals, an infill spa building between B2 and B3, and the erection of a new single residential dwelling on the existing hard standing area.

The works has potential to impact upon any bats that may be using the application site for roosting. An inspection of buildings B1 – B5 during the Preliminary Ecological Appraisal was carried out in July 2023 to determine their level of potential to support roosting bats. B1 was considered to have high potential to support roosting bats and bat droppings were present which confirmed a bat roost was present. B2 was concluded to have low potential on the gable end and B3 – B5 were also considered to have low potential.

The emergence surveys in July, August and September 2023 revealed there to be roosts for common pipistrelle and Natterer's bats in B1, with enough common pipistrelle using the building for this to be a potential small maternity roost and with the Natterer's colony a likely day roost. A likely maternity roost for soprano pipistrelle was found, emerging from the gable end of B2. Buildings B3 – B5 had emergences by single common and soprano pipistrelle bats and are considered to be an opportunistic day roosts for these species.

The alterations to the buildings B1 – B5 has the potential to disturb, injure or kill bats and to damage or destroy roosts.

Prior to any works commencing on buildings B1 – B5, a European Protected Species Mitigation Licence from Natural England must be obtained once full planning permission has been granted. This will require the production of a mitigation methods statement and reasoned statement to accompany the licence application. This will be finalised at the time of the licence application but must ensure bats are not left without a roost and are fully protected in the short term during the works and long term after completion of the development. Ideally roosts will be retained and where this is not possible new roost creation may be required. There will be timing restrictions to the start of works and the removal of Potential Roost Features must be undertaken by hand and supervised by a bat licensed ecologist.

A bat sensitive lighting scheme will be required during the construction and operation of the development.

With adherence to the mitigation steps proposed here, it is predicted that no negative impact on protected bat species, or their local conservation status, will be sustained as a result of the proposed works.

## 1 Introduction

### 1.1 Background to Commission

360 Ecology Ltd was commissioned by Nicolas and Amy Philippe (the client) in July 2023 to undertake a bat roost survey of outbuildings at Flemings Hall in order to support a planning application to existing buildings to provide independent holiday rentals. As all native bat species are material planning considerations, which must be accounted for before a planning decision is made, it is important to establish their presence or likely absence prior to the modification of any structures which may support bats.

### 1.2 Site Location & Surroundings

The site is located down a rural road at Hall Road, Bedingfield, Suffolk IP23 7QF, Grid Reference TM 19249 67850 and is approximately 0.2 hectares in size. The application site is set in a rural location and surrounded by arable fields with Hall Road to the south-west and farm buildings directly beyond. Flemings Hall and its gardens lie to the north and is separated from the site by a moat and connecting footbridge.

The site lies within the administrative authority of Babergh & Mid Suffolk Council.

Plans showing the location of the site and surrounding landscape are included in Figure 1 in Appendix A.

### 1.3 Project Overview

The designs are for converting the existing buildings to provide independent holiday rentals. A spa building is designed to infill between existing buildings and a new detached home is proposed to the end of the site in the form and scale of the existing barn arrangements.

The 16th Century thatched barn is proposed to be converted into holiday rental with the newer external walls to the gable ends to be removed and replaced by glass.

### 1.4 Legislation and Policy Context

All native bat species are fully protected by nature conservation legislation. Protection is afforded by Section 9 of the Wildlife and Countryside Act 1981 (as amended) through the species' inclusion under Schedule 5. All native bat species are also defined as European Protected Species (EPS) through inclusion in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), the UK implementation of the EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.

In brief, these legislative instruments make it an offence to deliberately or recklessly capture, injure, or kill any bat. Roosts are protected from damage or destruction. Furthermore, it is an offence to deliberately disturb a bat, whether roosting or otherwise.

In addition, the following native bats are adopted as Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities Act 2006:

- Barbastelle Bat - *Barbastella barbastellus*
- Bechstein's Bat - *Myotis bechsteinii*
- Noctule - *Nyctalus noctula*
- Soprano Pipistrelle - *Pipistrellus pygmaeus*
- Brown Long-eared Bat - *Plecotus auritus*
- Greater Horseshoe Bat - *Rhinolophus ferrumequinum*
- Lesser Horseshoe Bat - *Rhinolophus hipposideros*

## 1.5 Local Policy

The following key pieces of nature conservation legislation are relevant to this appraisal.

- The Conservation of Habitats and Species Regulations, 2017 (as amended) /Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (commonly referred to as the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended); and
- Natural Environment and Rural Communities Act 2006.

The National Planning Policy Framework (Department of Communities and Local Government, 2021) requires local authorities to avoid and minimise impacts on biodiversity and, where possible, to provide net gains in biodiversity when taking planning decisions: “The planning system should contribute to and enhance the natural and local environment protecting and enhancing valued landscapes and minimising impacts on biodiversity and providing net gains in biodiversity”.

Other planning policies at the local level which are of relevance to this development include East Suffolk Council’s Suffolk Coastal Local Plan (adopted September 2020) which aims to satisfy their obligations under the NERC Act through the planning process.

The site lies within the Mid Suffolk District Council, which is now joined with Babergh District Council as Babergh Mid Suffolk District Council. The Mid-Suffolk District Council Core Strategy Development Plan adopted September 2008 (Updated December 2012), Policy CS5: Mid Suffolk’s Environment, Mid Suffolk Local Plan (1998) and Joint Babergh and Mid Suffolk District Council Landscape Guidance (August 2015) are relevant to this application.

## **2 Methodology**

### **2.1 Bat Dropping Analysis**

Droppings from the outbuildings were collected during the PEA visit in July 2023 by Vicky Rusby under sterile conditions. DNA analysis of droppings was required to identify the species bats utilising the barn B1. The multispecies analysis was undertaken by Ecotype Genetics whereby all UK bat species are tested for presence/absence using qPCR identification method.

### **2.2 Dusk Emergence Surveys**

The buildings were assessed from the ground for any features that had the potential to support roosting bats, in line with Good Practice Guidelines published by the Bat Conservation Trust (Collins, J. (ed.), 2016). During the survey, a search from the ground was undertaken for direct evidence of bat activity, such as droppings, urine stains and scratch marks. Potential access points, particularly those free of cobwebs and other obstructions, were also recorded, irrespective of whether there was direct evidence of use in the vicinity. Equipment used included binoculars and a high-powered torch.

The survey area comprised the thatched barn (B1), residential outbuilding (B2), storage outbuilding (B3), undercover cart lodge (B4) and the log store (B5). Buildings B3 – B5 shared a continuous tiled roof.

The emergence surveys were conducted in suitable conditions on 31<sup>st</sup> July 2023 (B1), 1<sup>st</sup> August 2023 (B2 gable end, B3-B5), 7<sup>th</sup> August 2023 (B3-B5), 28<sup>th</sup> August 2023 (B1, B2 gable end & B3-B5), 14<sup>th</sup> September (B1, B2 gable end & B3-B5)

The aim of the emergence and re-entry surveys undertaken was to establish the presence or likely absence of bat species within any potential roost features that would be impacted by the development proposals. All surveys were carried out accordance with Good Practice Guidelines published by the Bat Conservation Trust (Collins, J. (ed.), 2016).

All surveys were carried out using Echo Meter Touch Pro bat detectors, recorded by Android devices for later analysis. Two to three surveyors were positioned with maximum visibility of potential emergence points for roosting bats.

Surveys followed the Bat Conservation Trust Interim Guidance Note: Use of night vision aids for bat emergence surveys (Bat Conservation Trust, 2022) and cameras were used to record bat activity during all surveys, for later review. A GuideTrack 19mm thermal camera with external recording screen, infrared Nightfox Whisker and infrared Reolink CCTV with Acer external screen were used during the survey visits. The cameras were used on all survey visits, on all elevations with PRFs where access was possible and positioned with a clear field of view as much as was possible. Supplementary information, such as foraging and commuting behaviour, was also noted, in order to develop best possible understanding of how the site is utilised by bats.

### **2.3 Personnel**

The bat roost surveys of buildings were led by Vicky Rusby BSc, who is a Consultant Ecologist at 360 Ecology Ltd and an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM). Vicky was assisted by Matt Banner and by Samuel Rusby.

Matt Banner (BSc, MSc) has over 20 years' experience in environmental work and 3+ years as a full-time ecologist, Matt is experienced in widespread bat ecology and field survey techniques.

Samuel Rusby is a full-time student, trained in bat survey methodology.

Vicky is a Level 2 bat licensed ecologist (Natural England licence number 2019-44170-CLS-CLS) with over six years' bat ecology experience and has held numerous bat mitigation licenses.

## 2.4 Evaluation and Mitigation

Natural England are the Statutory Nature Conservation Organisation for England and have issued guidance on appropriate mitigation for bats species in the context of development.

**Table 1. Guidelines for proportionate mitigation, taken from the Bat Mitigation Guidelines (Mitchell-Jones et al, 2004a).**

Conservation Significance	Roost Status	Mitigation/Compensation
Low	Feeding perches of common/species.	Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring.
	Individual bats of common species.	
Medium	Small numbers of common species. Not a maternity site.	Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable based on the species' requirements. Minimal timing constraints or monitoring requirements.
	Feeding perches of Annex II species.	
	Small numbers of rarer species. Not a maternity site.	
High	Hibernation sites for small numbers of common/rarer species.	Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for two years preferred.
	Maternity sites of common species.	
Very High	Maternity sites of rarer species.	Timing constraints. Like-for-like replacement as a minimum. No destruction of former roost until replacement completed and usage demonstrated. Monitoring for at least 2 years.
	Significant hibernation sites for rarer/rarest species or all species assemblages.	
Very High	Sites meeting SSSI guidelines.	Natural England generally opposes interference. Seek improved roost provision. Timing constraints. No destruction of former roost until replacement completed and significant usage demonstrated. Monitoring for as long as possible.
	Maternity sites of rarest species.	

### 3 Survey Results

#### 3.1 Buildings

A plan showing the buildings inspected is given in Figure 2, Appendix A.

##### 3.1.1 Thatched Barn B1

Double storey 16th Century thatched and weatherboard barn on a small footprint. Currently used for storage, in moderate condition. Internal timber frame with weatherboarding to all walls and a thatched roof.

Sections of timbers and weatherboarding were clearly of more recent construction than other areas. Holes and gaps were present between joints in wooden beams over the entirety of the structure. Gaps between beams and weatherboarding in numerous locations. Observations were made from ground level only and an endoscope was used to investigate accessible roost features.

Around 50 – 70 fresh to old, bat droppings were observed over the barn internally. Predominantly these were located along the ground along the base of the walls with a few scattered over the centre of the building. A single butterfly wing was caught in cobwebs on the east gable end, which may be an indication of feeding remains discarded by bats.

Droppings were collected in a labelled container for DNA analysis.

##### **High potential and confirmed bat roost.**

##### 3.1.2 Residential Outbuilding B2

Numerous gaps at eaves level on the south elevation provided access points. Gaps at both gable ends at corners of the roof at eaves level. To the north elevation a couple of gaps at eaves level, one of which had a possible bat dropping located on the brick wall beneath. Gaps were present between wooden timbers in the passageway area and gaps along the west elevation.

The tiles were very gappy along the south and west roof pitches. A void was present between the tiles and roof felt below. To the west a thick covering of moss meant there were no gaps between tiles and tiles on the north pitch were well fitted with no obvious gaps.

Loft access was located centrally along the long 'L' where standing room was possible. The loft then reduced to a crawl space towards the gable ends and it was advised this continued above the passageway and store area on the short 'L'. The underside of the tiled roof was covered by fairly new breathable membrane, no holes or tears were visible.

No bat droppings were present within the accessible areas of the loft void. No bats were observed during the survey visit.

##### **Moderate Potential for roosting bats and potential roost.**

##### 3.1.3 Storage Outbuilding B3

The tiled roof was fairly tightly fitting with no large gaps between tiles over the north and south pitches. Internally the building was open with no attic space, the roof felt formed the ceiling. No tears were present in the roof felt. However, a gap ran along the tops of the walls at eaves level, which created access into the building. Around ten fresh bat droppings were present on the floor, there were no possible roost locations above the droppings and no gaps or crevices suitable for bats could be observed anywhere within the building.

Around 10 bat droppings were present within the building.



Droppings were collected in a labelled container for DNA analysis.

#### **Low Potential for roosting bats**

##### **3.1.4 Undercover Cart Lodge B4**

No potential roost locations were visible inside the open structure. The tiled roof was well fitted on both the north and south pitches.

#### **Negligible Potential for roosting bats**

##### **3.1.5 Log Store Outbuilding B5**

The tiled roof was fairly tightly fitting with no large gaps between tiles over the north and south pitches. Internally the building was open with no attic space, the roof felt formed the ceiling. No tears were present in the roof felt. However, a gap ran along the tops of the walls at eaves level, which created access into the building. Three fresh bat droppings were present on the floor, there were no possible roost locations above the droppings and no gaps or crevices suitable for bats could be observed anywhere within the building.

Three bat droppings were present within the building.

#### **Low Potential for roosting bats**

### **3.2 DNA Survey Results**

Results from the DNA analysis for droppings collected during the July 2023 PEA survey visit confirmed there were two species of bat present within the thatched barn B1: Common pipistrelle (qPCR Ct Value: 19) and Natterer's bat (qPCR Ct Value: 17).

### **3.3 Dusk Emergence Survey Results**

#### **3.3.1 Summary**

During the course of the dusk emergence surveys, a total of four bat species/species groups were identified as active on-site. These species include common pipistrelle, *Pipistrellus pipistrellus*, soprano pipistrelle, noctule, and Natterer's bat *Myotis nattereri* which were observed utilising the site. Pipistrelle and Natterer's bat were the most common species recorded on-site.

Please see Appendix B for meteorological conditions during the surveys and a consolidation of raw survey data.

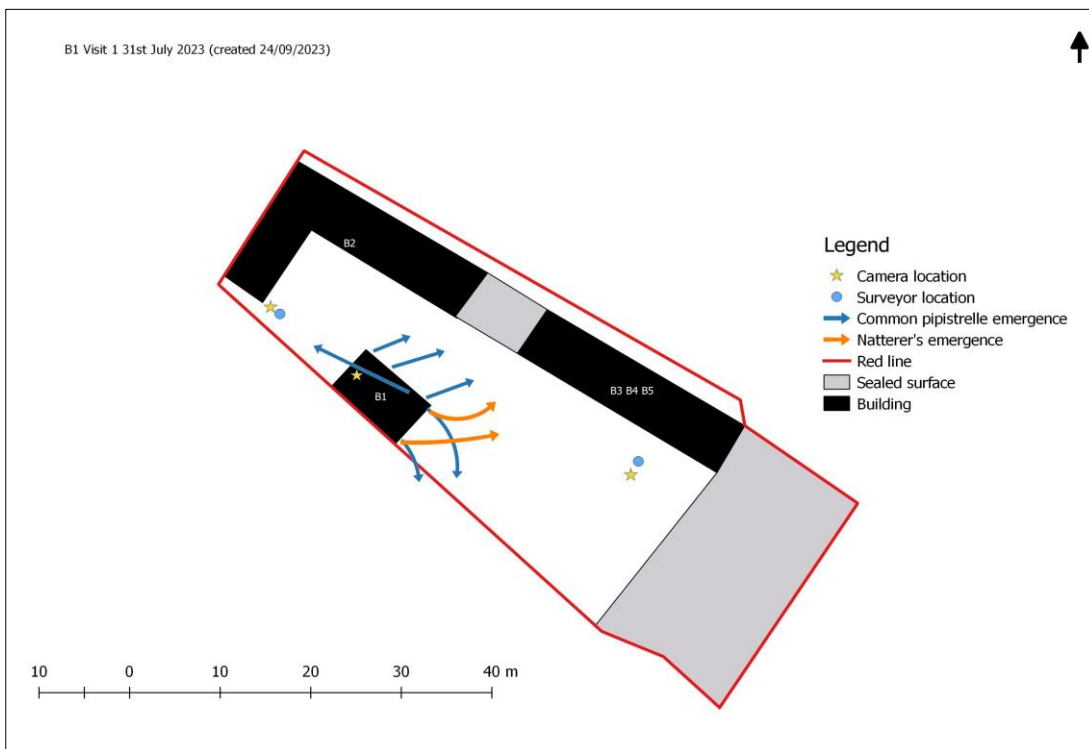
#### **3.3.2 Thatched Barn B1**

##### **B1 Survey Visit 1 – 31<sup>st</sup> July 2023**

Twenty-four emergences or possible emergences in total.

Twenty emergences by common pipistrelle from the north and east elevation, including one emergence recorded by an internal camera which then left the building via the open door at the west elevation.

Four emergences by Natterer's bats from the east elevation between weatherboarding.



### B1 Survey Visit 1a – 7<sup>th</sup> August 2023

During the emergence survey on B3-B5 the surveyor was seated next to the east elevation of B1 and noted six emergences and one re-entry by Natterer's bats and three common pipistrelle re-enter the building above the surveyor's vantage point. As the other elevations were not observed this is not included as a full survey, but as extra observational data.

### B1 Survey Visit 2 – 28<sup>th</sup> August 2023

Four emergences by common pipistrelle from the west and east elevations, with one possible re-entry on the west elevation.

Fifteen emergences by Natterer's bats on the east elevation and three re-entries to the same location.

Two soprano pipistrelle emergences from the east elevation.

One non-echolocating bat emerged from the east elevation which had registrations on the acoustic detector for both Natterer's and soprano pipistrelle bats at the same time and could not be determined which of these two species it was.

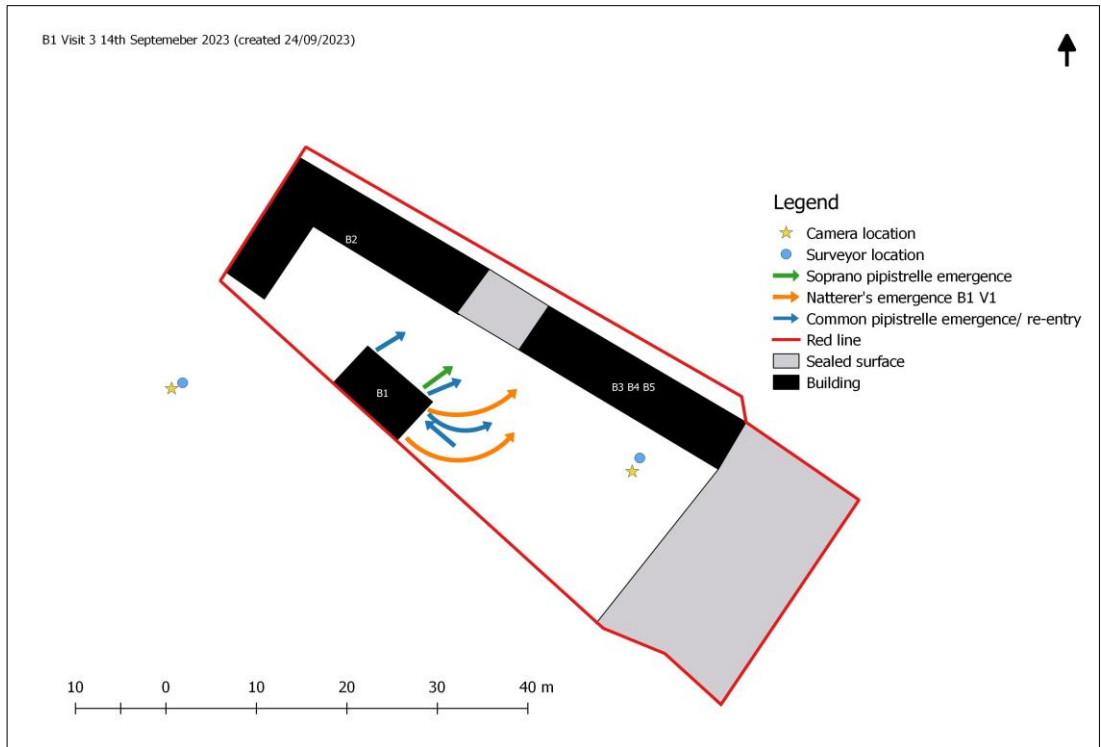


## B1 Survey Visit 3 – 14<sup>th</sup> September 2023

Five emergences by Natterer's bats from the east elevation on the north and south corners.

Ten emergences by common pipistrelle on the north and east elevations and two re-entries on the east elevation.

A single emergence by a soprano pipistrelle on the north elevation.



## B1 Summary

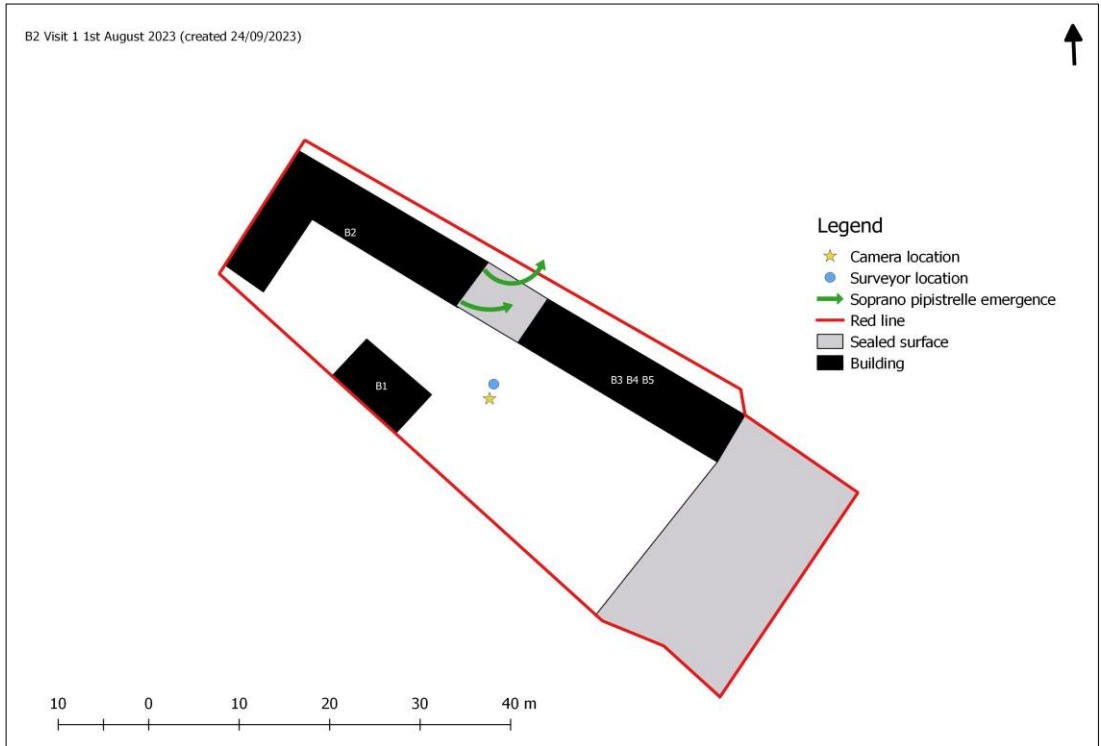
Table 2. B1 peak counts of emerging bats were found for each survey visit.

	31 <sup>st</sup> July 2023	7 <sup>th</sup> August 2023	28 <sup>th</sup> August 2023	14 <sup>th</sup> September 2023	Peak count over survey period
Common pipistrelle emergence	20	-	4	10	20
Common pipistrelle re-entry	-	3	1	2	-
Soprano pipistrelle	-	-	2	1	2
Natterer's bat	4	6	15	5	12
Natterer's bat re-entry	-	1	3	-	-
Natterer's/soprano pipistrelle	-	-	1	-	1

### 3.3.1 Residential Outbuilding Gable End B2

#### B2 Survey Visit 1 – 1<sup>st</sup> August 2023

Thirty-four emergences by soprano pipistrelle on the east gable end of B2 from two locations on the east roofline.



#### B2 Survey Visit 2 – 28<sup>th</sup> August 2023

Eight emergences by soprano pipistrelle bats on the gable end from locations all around the roofline.



### B2 Survey Visit 3 – 14<sup>th</sup> September 2023

No emergences or re-entries by any bat.

#### Summary

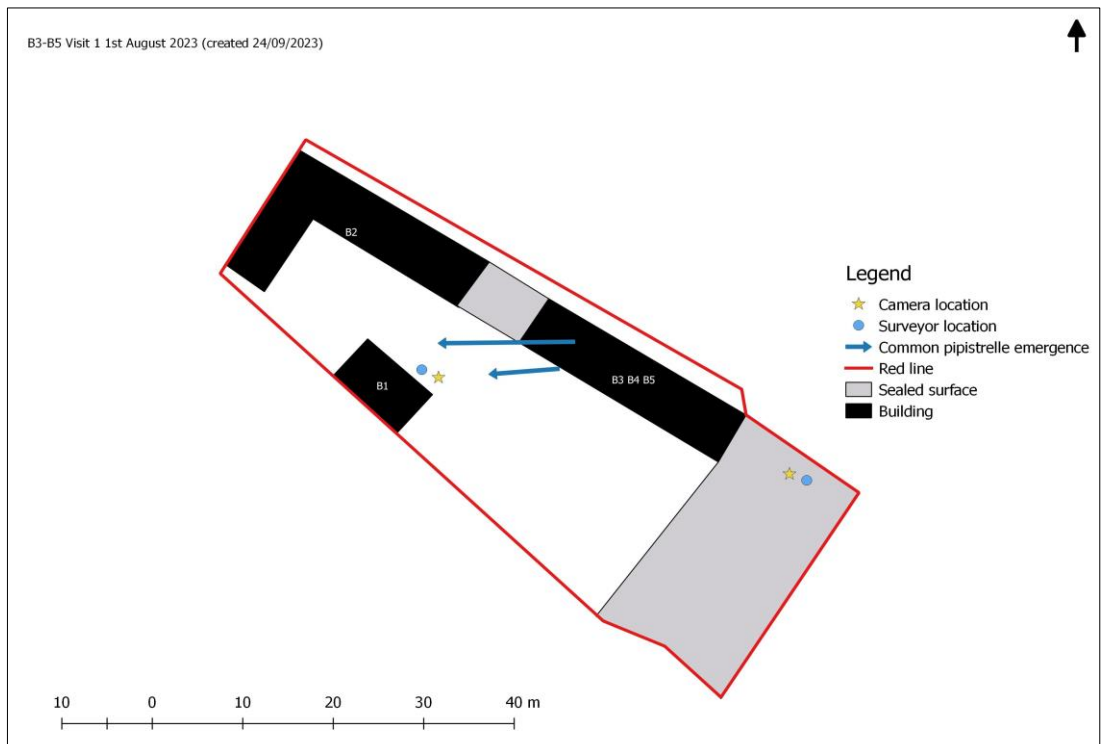
Table 3. B2 peak counts of emerging bats were found for each survey visit.

	1 <sup>st</sup> August 2023	28 <sup>th</sup> August 2023	14 <sup>th</sup> September 2023	Peak count over survey period
Common pipistrelle emergence	-	-	-	0
Common pipistrelle re-entry	-	-	-	-
Soprano pipistrelle	34	8	-	34
Natterer's bat	-	-	-	0
Natterer's bat re-entry	-	-	-	-
Natterer's/soprano pipistrelle	-	-	-	-

### 3.3.2 Buildings B3 – B5 B2

#### B3-B5 Survey Visit 1 – 1<sup>st</sup> August 2023

An emergence by a common pipistrelle from ridge tiles of B3. An emergence by a common pipistrelle at eaves level of B3.



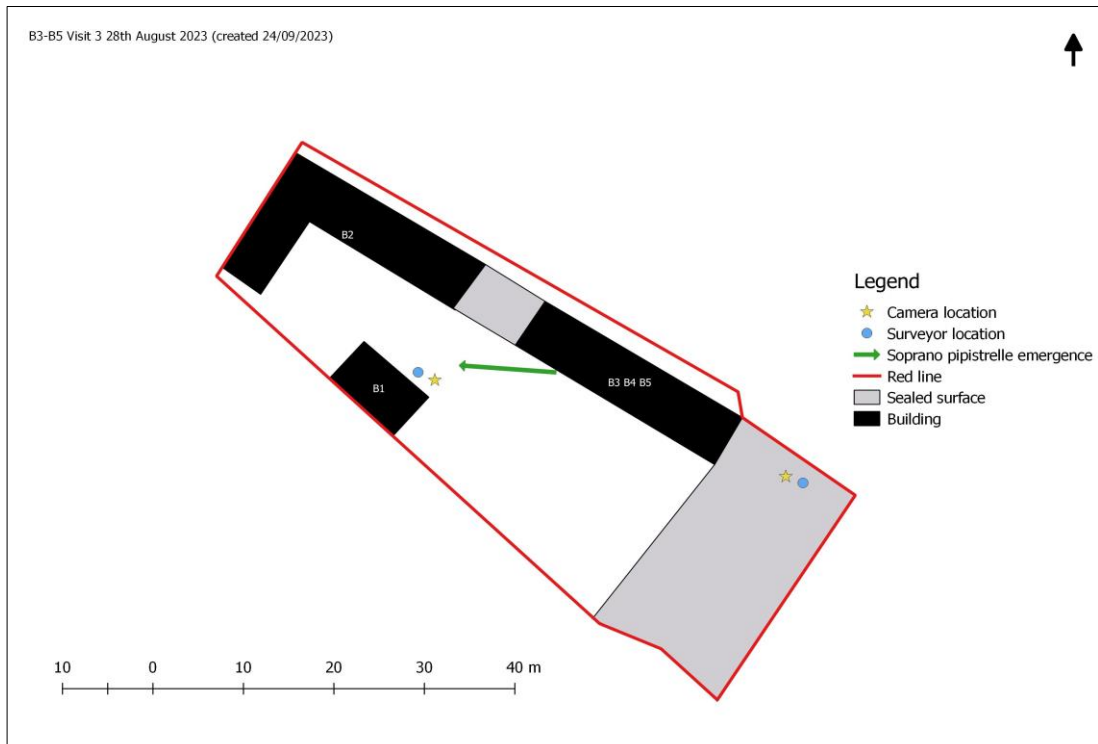
### B3-B5 Survey Visit 2 – 7<sup>th</sup> August 2023

An emergence by a common pipistrelle from the corner of B5. A possible emergence by a common pipistrelle from the open cart lodge (B4), common pipistrelle were entering the open area to forage, therefore this is possibly a foraging bat, however, video footage does not show the bat entering.



### B3-B5 Survey Visit 3 – 28<sup>th</sup> August 2023

An emergence by a single soprano pipistrelle from B3 at eaves level.



### B3-B5 Survey Visit 4 – 14<sup>th</sup> September 2023

An additional survey visit was incorporated into a planned visit as visits 1 and 2 were only 7 days apart which does not follow published guidance.

No emergencies or re-entries were observed or recorded during this visit.

**Table 4. B3-B5 peak counts of emerging bats were found for each survey visit.**

	1 <sup>st</sup> August 2023	7 <sup>th</sup> August 2023	28 <sup>th</sup> August 2023	14 <sup>th</sup> September 2023	Peak count over survey period
Common pipistrelle emergence	2	2	0	0	2
Common pipistrelle re-entry	-	-	-	-	-
Soprano pipistrelle	0	0	1	0	1
Natterer's bat	-	-	-	-	-
Natterer's bat re- entry	-	-	-	-	-
Natterer's/soprano pipistrelle	-	-	-	-	-

## 4 Assessment and Recommendations

### 4.1 Discussion

The evidence (droppings) found during the Preliminary Ecological Appraisal confirmed the thatched barn, B1 as a bat roost. The DNA analysis confirmed B1 was a bat roost for Natterer's and common pipistrelle bats. No other bat species droppings were collected from within the barn.

Droppings were also present in B3-B5 but internally no roosting opportunities were present and surveys were required to determine if these were active roosts.

Emergences were observed and recorded for buildings B1, B2 (gable end) and B3-B5.

Natterer's bats were found in B1 only and a peak count of 12 individual bats were present on the 28<sup>th</sup> August. Published guidance indicates maternity colonies comprise a minimum of 20-30 individuals. The maternity period for pups to be born is June – July, with pups weaned after 6 weeks (July – August). The peak count of 12 bats and emergence survey on the 31<sup>st</sup> of July having a peak count of 4 Natterer's bats only, allows confidence the barn is not a maternity roost. The roost is likely be a day roost for this species, utilising the joints in the beams. On the 14<sup>th</sup> September visit bats (thought to be Natterer's bats) were observed by torch, in mortice joints between beams inside B1.

Maternity colonies of pipistrelles can be as small as 12-50 individuals although up to 100 common pipistrelle bats and up to 200 bats soprano pipistrelle are possible. The colony size found at both B1 (peak count 20 bats) and B2 (peak count 34 bats) should be considered a likely small maternity colony for each species.

Pipistrelle bats are known to frequently 'roost switch' through the year, thought to be dependent on weather conditions. The inconsistent roost size at the buildings over the three survey visits indicates the bats are using other roost sites locally and are not dependant on this one roosting location.

Natterer's bat will make use of a wide range of roosting sites, in buildings (crevices or roof spaces) and trees. Summer colonies are often in old stone buildings with large timber beams, such as castles, manor houses and churches, or large old timbered barns. Crevices in beams or gaps in beam joints are common roost sites, where they are often hidden amongst timber or tiles. Occasionally they may use bat boxes. Access to roost sites is usually by direct uninterrupted flight through a permanently open aperture as they light sample prior to emergence. Internal flight inside B1 was noted prior to emergence during the first survey visit when a camera was placed inside the barn.

There was foraging activity by Natterer's, common and soprano pipistrelle bats at the application site and bats were utilising the garden area and adjacent hedgerow for foraging. Predominately over the survey visits it was noted emerging bats would fly east towards the moat and gardens of Flemings Hall.

Pipistrelle species are known to use the same roosts for hibernation as for summer roosting activity. Therefore, pipistrelle bats are likely to be present under tiles and in the crevices inside B1 during winter.

Over the winter months Natterer's bats are generally recorded hibernating in caves, disused railway tunnels and churches. Natterer's bat are found singly or in small groups in cave-like environments from late December through to the end of February. Natterer's bats are the species most commonly found in cool regions of cave-like environments (Greenaway &



Hutson, 1990). It is considered the barn is of low suitability for hibernation by Natterer's bats. There is some possibility they may be utilising Flemings Hall itself as a maternity and hibernation site, as the structure is likely to have suitable conditions within attic spaces.

Based on the information gathered it is concluded that the following roosts are present:

- A day roost for Natterer's bats in B1, of Local Importance;
- A small maternity roost for common pipistrelle in B1, of Local Importance;
- An occasional day roost for soprano pipistrelle in B1, of Local Importance;
- A small maternity roost for soprano pipistrelle in B2, of Local Importance; and
- Occasional opportunistic day roosts for both common and soprano pipistrelle under B3 – B5 tiled roof, of Local Importance.

## 4.2 Potential Impacts of Proposed Works

### 4.2.1 Short Term Impacts

There is potential for direct adverse impacts on roosting bats through disturbance, injury or death and the damage or destruction of three roosts in B1 as a result of the proposed alterations of the buildings. The roosts in B1, B2 gable end and B3-B5 may be lost to the development without mitigation.

### 4.2.2 Long Term Impacts

Common pipistrelle, soprano pipistrelle and Natterer's are all common and widespread species within the UK.

Pipistrelle are crevice-dwelling species and can utilise a wide variety of features within buildings and trees. Natterer's bats require an open area inside buildings to allow light sampling flights prior to emergence.

The building B1 supports roosts of three species and is considered reasonably likely to support a maternity roost for common pipistrelle bats based on numbers present during maternity season, these are of **medium conservation significance**.

The building B2 gable end supports a maternity roost for soprano pipistrelle bats, based on numbers present during maternity season, these are of **medium conservation significance**.

The buildings are likely to be utilised as a hibernation roost for low numbers of pipistrelle bats. If hibernating bats are present this would be of **medium conservation significance**.

B1 is considered unlikely to be a hibernation roost for Natterer's bats.

The loss of these roost spaces are unlikely to have a significant adverse impact on the local population of common pipistrelle, soprano pipistrelle and Natterer's bats *if suitable mitigation is provided*.

Connectivity through the application site and with the wider landscape will not be disrupted if a sensitive lighting strategy is in place. Insensitive external lighting within the development could disrupt commuting and foraging bats and render existing and proposed roost sites unsuitable, leading to the abandonment and loss of roosts within the application site and adjacent habitats.

## 4.3 Mitigation Requirements

Potential for short and long-term adverse impacts to bats have been identified above, and as such there is a need to provide appropriate mitigation and compensation.

A number of mitigation and compensation measures are required during the construction and operation phases to ensure that there is no negative impact to any bats or their long-term conservation status as a result of the development.

#### **4.3.1 Construction Phase**

Prior and during demolition.

A European Protected Species Mitigation (EPSM) licence must be obtained from Natural England prior to any works commencing on building B1, B2, B3, B4 and B5. This will finalise the working methods, some guidance is given below, however, this may alter subject to consultation as the project develops.

- Bats must not be left without roosts and must be given time to find new roosts.
- Where possible roosts should be retained.
- Bat boxes may be required as 'rescue boxes' to provide a place to put any bats found during the works. Bat boxes should be installed at least 4m above the ground where possible and face south, south-east or south-west with clear, unobstructed flight access. Boxes will be required to be retained post development and for at least 5 years.
- Scaffolding installed should not block access points.
- The tiles, weatherboarding, bargeboards and any soffits close to the locations of bat roosts should be removed by hand under the supervision of a licenced bat ecologist.
- The timing of the works to the building will be determined within the EPSM licence works schedule and should take place at the appropriate period to avoid disturbing bats. Works will be restricted to commencing outside the hibernation or maternity season. This means works can only commence in September – October (inclusive) or March – April (inclusive), or in suitable weather conditions.

#### **4.3.2 Operation Phase**

During construction and occupation of the new dwelling

- More or less like-for-like replacement roosts will be required to be built into the development.
- The access point should match the existing as much as possible.
- Roost alterations and creation will be detailed in the Method in the EPSM Licence.
- Only bitumen felt type 1F, which is hessian reinforced or a non-bitumen coated roofing membrane (formerly BRM) which has passed the Natural England snagging propensity test completed by an independent laboratory (currently this is only TLX 'Bat Safe'), may be used over the roofs.
- A bat sensitive lighting scheme should be implemented during the operation of the development. Measures should include avoidance of all lighting which would light the new bat access points or key habitat features.
  - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used
  - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability
  - A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component
  - Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
  - Internal luminaires can be recessed (as opposed to using a pendant fitting where installed in proximity to windows to reduce glare and light spill

- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges or car parking spaces.
  - Where appropriate, external security lighting should be set on motion sensors and set to as short as possible on a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
  - Further information can be found within Guidance Note GN08/23 Bats and Artificial Lighting at Night (Institution of Lighting Professionals, 2023).
- Post development, a compliance check is required by Natural England by a bat licensed ecologist to ensure the mitigation outlined in the Method Statement is carried out correctly and allow a Report of Actions to be submitted to allow close-out of the licence.
  - Monitoring may be required as a licence condition. This will be confirmed by the licence submission.

#### **4.4 Information on European Protected Species Mitigation Licences**

The requirement for an application for a European Protected Species Mitigation Licence from Natural England is mentioned above and as such it is important to provide information on the procedure that this entails.

The licence will be required before any work to this property can commence and such a licence can only be approved by Natural England after planning permission has been gained for the proposed development. A comprehensive mitigation and compensation package will be necessary to demonstrate to the local planning authority and Natural England that bats will be protected in the short, medium and long term at this site.

It is not anticipated that offences will apply in this project when a full mitigation and/or compensation programme is implemented, but it is important to recognise that in this case, work can only proceed once the necessary licence is in place. In determining whether or not to grant a licence Natural England must apply the requirements of Regulation 535 of the Conservation of Habitats and Species Regulations 2017 (as amended) which are.

- (1) a licence can be granted for the purposes 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”.
- (2) the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.
- (3) the appropriate authority shall not grant a licence unless they are satisfied “that 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.”

A mitigation methods statement and reasoned statement accompanying the licence application will need to provide the information necessary to allow Natural England to assess these tests. The application approval process by Natural England can take upwards of 30 days to complete, with known instances of 90 days for some applications to be granted and may be chargeable by Natural England.

Natural England require data from the most recent survey season, therefore if licence application is delayed past May 2024, an updating emergence survey visit will be required for each building.

#### **4.5 Enhancement Opportunities**

Potential ecological enhancements for bats include:

- Soft landscaping that includes a variety of native plant species will provide good quality food supply for insects, and therefore, a better foraging resource for bats. Planting night-scented flowers such as evening primrose (*Oenothera biennis*), jasmine (*Jasminum officinale*) and honeysuckle (*Lonicera periclymenum*) will also be beneficial.

#### **4.6 Data Constraints**

There were no weather or access constraints that could affect the reliability of the data. All surveys were carried out in adequate weather conditions and above the minimum temperature of 10°C.

Access to the east of B2 – B5 was not possible due to a moat and vegetation obstructing observations. The roof tiles over the buildings were heavily mossed over the east pitch and no obvious gaps, cracks or crevices were noted. Therefore, it was considered unlikely that roost access would be present on these pitches.

## 5 References

BTHK 2018. *Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Exeter: Pelagic Publishing.

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> edn). The Bat Conservation Trust, London.

Guidance Note 08/23: *Bats and Artificial Lighting At Night* (2023). Institution of Lighting Professionals, Warwickshire.

Mitchell-Jones, A. J. (2004). *Natural England Bat Mitigation Guidelines*. English Nature. Peterborough.

Mitchell-Jones, A. J. and McLeish, A. P. eds., (2004). *Bat Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

QGIS. (2021). *QGIS: A Free and Open-Source Geographic Information System*. Available at: <http://qgis.org> [Accessed September 2023].

## Appendix A: Site Plans



Figure 1: Plan showing the location of the application site and the surrounding landscape.



Figure 2: Plan showing the buildings surveyed indicated by yellow hashed area.

## Appendix B: Dusk Emergence Survey Data

### Thatched Barn B1

Visit 1

<b>Location:</b>	<b>B1</b>		
<b>Weather:</b>	85% cloud, 2BF, dry		
<b>Start temp:</b>	17°C	<b>End temp:</b>	16°C
<b>Date:</b>	31/07/2023	<b>Sunrise/sunset times:</b>	20:48
<b>Start time:</b>	20:47	<b>End time:</b>	22:27
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>21:03</b>	Common pipistrelle	<b>Emerged</b> north side of B1 internal	
<b>21:17</b>	Common pipistrelle	Heard not seen, internal detector	
<b>21:30</b>	Common pipistrelle	Over garden, 5 passes east	
<b>21:35</b>	Common pipistrelle x 3	<b>Emerged</b> north elevation eaves level	
<b>21:35</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner	
<b>21:36</b>	Common pipistrelle x 2	<b>Emerged</b> north elevation gap in weatherboarding mid-way up barn	
<b>21:37</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner	
<b>21:38</b>	Common pipistrelle	<b>Emerged</b> north elevation gap in weatherboarding mid-way up barn	
<b>21:39</b>	Common pipistrelle x 2	Foraging around garden and close to barn, east	
<b>21:41</b>	Common pipistrelle	<b>Emerged</b> east elevation gable end	
<b>21:44</b>	Common pipistrelle	<b>Emerged</b> north elevation gap in weatherboarding mid-way up barn	
<b>21:46</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner	
<b>21:46</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
<b>21:47</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner	

21:47	Common pipistrelle x 2	<b>Emerged</b> from north side of B1 internal
21:47	Common pipistrelle	<b>Emerged</b> from north elevation, east corner
21:48	Common pipistrelle	Foraging around garden, east
21:48	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner
21:53	Common pipistrelle	Fly past internal
21:53	Natterer's	Heard not seen, 3 registrations, east
21:57	Natterer's x 2	<b>Possible emergence</b> east elevation gap in weatherboarding on east corner
21:57	Common pipistrelle	Foraging around garden and barn, east
21:58	Natterer's	<b>Possible emergence</b> east elevation gap in weatherboarding on east corner
22:00	Common pipistrelle	<b>Emerged</b> north elevation eaves level
22:01	Common pipistrelle	<b>Emerged</b> north elevation eaves level
22:01-22:27	Common pipistrelle	Foraging around garden and barn, east
22:05	Natterer's	<b>Emerged</b> from north elevation, east corner

Visit 1a

<b>Location:</b>	B1		
<b>Weather:</b>	10% cloud, 0-1BF, dry		
<b>Start temp:</b>	18°C	<b>End temp:</b>	17°C
<b>Date:</b>	07/08/2023	<b>Sunrise/sunset times:</b>	20:36
<b>Start time:</b>	20:11	<b>End time:</b>	22:06
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
20:43	Natterer's	<b>Emerged</b> from between weatherboarding east elevation	
20:54	Natterer's	<b>Emerged</b> from between weatherboarding east elevation	
21:00	Natterer's	<b>Likely emerged</b> but surveyor did not observed (heard not seen)	



<b>21:06</b>	Natterer's	<b>Emerged</b> from between weatherboarding east elevation
<b>21:12</b>	Natterer's	<b>Emerged</b> from between weatherboarding east elevation
<b>21:14</b>	Natterer's	<b>Re-entered</b> between weatherboarding east elevation
<b>21:17</b>	Natterer's	<b>Emerged</b> from between weatherboarding east elevation
<b>21:23</b>	Common pipistrelle x 3	<b>Re-entered</b> between weatherboarding east elevation

Visit 2

<b>Location:</b>	<b>B1</b>		
<b>Weather:</b>	25% cloud, 1BF, dry		
<b>Start temp:</b>	18°C	<b>End temp:</b>	14°C
<b>Date:</b>	28/08/2023	<b>Sunrise/sunset times:</b>	19:53
<b>Start time:</b>	19:40	<b>End time:</b>	21:31
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>20:05</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
<b>20:07</b>	Common pipistrelle	Heard not seen, west	
<b>20:19</b>	Soprano pipistrelle x 2	Foraging in front of barn, numerous passes close to ground for around 20 minutes, two bats at times, east	
<b>20:27</b>	Common pipistrelle	Foraging up and down hedge next to road at least 30 minutes, west	
<b>20:35</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner, flew north	
<b>20:40</b>	Soprano pipistrelle x 2	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
<b>20:41</b>	Natterer's x 3	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
<b>20:42</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
<b>20:43</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	

<b>20:44</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:46</b>	Natterer's	Bats flying around garden, approaching access points and flying away, no re-entries, east
<b>20:48</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraged around garden and flew along hedge north
<b>20:51</b>	Natterer's x 2	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:51</b>	Pipistrelle species x 2	<b>Emerged</b> from weatherboarding north elevation, east side
<b>20:52</b>	Natterer's x 2	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:53</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:56</b>	Unknown bat (not echolocating)	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:57</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>20:58</b>	Natterer's x 2	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>21:00</b>	Natterer's x 2	Two bats chasing each other around garden, east
<b>21:11</b>	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>21:12</b>	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden
<b>21:17</b>	Common pipistrelle	<b>Possible re-entry</b> north elevation
<b>21:24</b>	Natterer's x 3	<b>Re-entered</b> after flying together for a few minutes in front on barn, east elevation gap in weatherboarding on east corner

Visit 3

<b>Location:</b>	<b>B1</b>		
<b>Weather:</b>	100% cloud, 1BF, dry		
<b>Start temp:</b>	16°C	<b>End temp:</b>	14.3°C
<b>Date:</b>	14/09/2023	<b>Sunrise/sunset times:</b>	19:14

Start time:	19:00	End time:	20:45
Time	Species	Notes (flight path, emerging/re-entering, location observed, behaviour)	
19:30	Natterer's x 2	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
19:31	Pipistrelle species	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
19:33	Pipistrelle species	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:39	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
19:41	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:42	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner	
19:45	Natterer's	<b>Emerged</b> east elevation gap in weatherboarding on east corner	
19:47	Common pipistrelle	<b>Emerged</b> north elevation weatherboarding mid-way down barn	
19:48	Common pipistrelle	<b>Emerged</b> north elevation weatherboarding mid-way down barn	
19:49	Common pipistrelle x 2	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:51	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:55	Common pipistrelle	<b>Emerged</b> north elevation weatherboarding mid-way down barn	
19:55	Soprano pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:56	Common pipistrelle	<b>Re-entered</b> between weatherboarding on east elevation	
19:57	Common pipistrelle	<b>Re-entered</b> east elevation gap in weatherboarding on south corner	
19:59	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	
19:59	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on east corner, foraging over garden	
20:03	Common pipistrelle	<b>Emerged</b> east elevation gap in weatherboarding on south corner	

<b>20:59</b>	Common pipistrelle x 2	Bats foraging in garden and circling barn at eaves level
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## Residential Outbuilding B2: Gable End

### Visit 1

<b>Location:</b>	B2 gable end		
<b>Weather:</b>	60% cloud, 2BF, dry		
<b>Start temp:</b>	16°C	<b>End temp:</b>	16°C
<b>Date:</b>	01/08/2023	<b>Sunrise/sunset times:</b>	20:32
<b>Start time:</b>	20:47	<b>End time:</b>	22:17
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>21:00</b>	Noctule	Heard not seen, 3 passes	
<b>21:01</b>	Common pipistrelle x 3	<b>Emerged</b> east side of B2 south gable end	
<b>21:02</b>	Common pipistrelle x 7	<b>Emerged</b> east side of B2 south gable end	
<b>21:04</b>	Common pipistrelle x 6	<b>Emerged</b> east side of B2 south gable end	
<b>21:05</b>	Common pipistrelle x 2	<b>Emerged</b> east side of B2 south gable end	
<b>21:07</b>	Common pipistrelle x 7	<b>Emerged</b> east side of B2 south gable end	
<b>21:08</b>	Common pipistrelle	<b>Emerged</b> east side of B2 south gable end	
<b>21:09</b>	Common pipistrelle	<b>Emerged</b> east side of B2 south gable end	
<b>21:09</b>	Common pipistrelle	Heard not seen, 10 passes	
<b>21:11</b>	Common pipistrelle	<b>Emerged</b> east side of B2 south gable end	
<b>21:15</b>	Common pipistrelle	Flew north-south over B2	
<b>21:16</b>	Common pipistrelle	Heard not seen, 5 passes	
<b>21:17</b>	Common pipistrelle	Flew east to west, might have emerged from B2 gable end?	
<b>21:24</b>	Common pipistrelle	<b>Possible emergence</b> east side of B2 south gable end	
<b>21:19-21:27</b>	Common pipistrelle	Foraging, numerous passes	
<b>21:27</b>	Common pipistrelle	<b>Emerged</b> west side of B2 south gable end	

<b>21:31</b>	Common pipistrelle x 3	<b>Emerged</b> west side of B2 south gable end
<b>21:32</b>	Common pipistrelle	<b>Emerged</b> west side of B2 south gable end
<b>21:34-21:45</b>	Common pipistrelle	Heard not seen, foraging with social calls, numerous passes
<b>21:45-21:54</b>	Natterer's	Heard not seen, close, numerous passes
<b>21:56-22:10</b>	Common pipistrelle	Foraging around garden
<b>22:13</b>	Natterer's	Heard not seen

Visit 2

<b>Location:</b>	<b>B2 Gable End</b>		
<b>Weather:</b>	25% cloud, 1BF, dry		
<b>Start temp:</b>	18°C	<b>End temp:</b>	14°C
<b>Date:</b>	28/08/2023	<b>Sunrise/sunset times:</b>	19:53
<b>Start time:</b>	19:40	<b>End time:</b>	21:31
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>19:53</b>	Common pipistrelle	<b>Emerged</b> east gable end, flew east	
<b>20:00</b>	Noctule	Heard not seen	
<b>20:03</b>	Common pipistrelle x 2	<b>Emerged</b> east gable end, flew east	
<b>20:05</b>	Common pipistrelle	<b>Possible emergence</b> east gable end, flew east	
<b>20:05</b>	Big bat species	Heard not seen	
<b>20:07</b>	Common pipistrelle	<b>Emerged</b> east gable end, flew east	
<b>20:07</b>	Soprano pipistrelle	Heard not seen	
<b>20:17</b>	Common pipistrelle	<b>Emerged</b> east gable end, flew east	
<b>20:20</b>	Common pipistrelle	<b>Emerged</b> east gable end, flew east	
<b>20:23</b>	Common pipistrelle	<b>Emerged</b> east gable end, flew east	

Visit 3

<b>Location:</b>	<b>B2 Gable End</b>		
<b>Weather:</b>	100% cloud, 1BF, dry		
<b>Start temp:</b>	16°C	<b>End temp:</b>	14.3°C
<b>Date:</b>	14/09/2023	<b>Sunrise/sunset times:</b>	19:18
<b>Start time:</b>	19:03	<b>End time:</b>	20:45
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>19:48</b>	Common pipistrelle	Foraging, 2 passes over garden	
<b>19:55</b>	Common pipistrelle	Foraging, 6 passes over garden	
<b>19:58</b>	Common pipistrelle	Foraging, 3 passes over garden	
<b>20:01-20:04</b>	Common pipistrelle	Foraging, 8 passes over garden	
<b>20:06-20:08</b>	Common pipistrelle	Foraging, heard not seen, 8 passes	
<b>20:20-20:23</b>	Common pipistrelle	Heard not seen, 20 passes	
<b>20:26</b>	Common pipistrelle	Heard not seen, 8 passes	
<b>20:36</b>	Common pipistrelle	Heard not seen, 5 passes	

B3 – B5

Visit 1

<b>Location:</b>	<b>B3 – B5</b>		
<b>Weather:</b>	10% cloud, 0-1BF, dry		
<b>Start temp:</b>	18°C	<b>End temp:</b>	17°C
<b>Date:</b>	07/08/2023	<b>Sunrise/sunset times:</b>	20:36
<b>Start time:</b>	20:11	<b>End time:</b>	22:06
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>20:11</b>	Noctule	Heard not seen, 2 passes	
<b>20:56</b>	Common pipistrelle	Foraging, east	

<b>20:43-21:14</b>	Natterer's	Heard not seen, numerous registrations from location of B1
<b>21:01</b>	Soprano pipistrelle Common pipistrelle	Foraging, east, numerous passes till survey end
<b>21:05</b>	Soprano pipistrelle	Heard not seen, 2 passes south
<b>21:11</b>	Soprano pipistrelle	<b>Emerged</b> B5 weatherboarding on corner with B4, flew north
<b>21:12</b>	Soprano pipistrelle	Foraging in garden, south
<b>21:13</b>	Common pipistrelle	Foraging inside cart lodge B4, 4 passes
<b>21:17</b>	Common pipistrelle	Foraging in garden, continuous, south
<b>21:51</b>	Common pipistrelle	<b>Possible emergence</b> from B4 open cart lodge

*Visit 2*

<b>Location:</b>	<b>B3-B5</b>		
<b>Weather:</b>	60% cloud, 2BF, dry		
<b>Start temp:</b>	16°C	<b>End temp:</b>	16°C
<b>Date:</b>	01/08/2023	<b>Sunrise/sunset times:</b>	20:32
<b>Start time:</b>	20:47	<b>End time:</b>	22:17
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>21:00</b>	Noctule	Heard not seen, 3 passes, south & east	
<b>21:06</b>	Common pipistrelle	<b>Emerged</b> at ridge tiles B3	
<b>21:09</b>	Common pipistrelle	Heard not seen, 10 passes	
<b>21:15</b>	Common pipistrelle	Flew north-south over B2	
<b>21:16</b>	Common pipistrelle	Heard not seen, 5 passes	
<b>21:17</b>	Common pipistrelle	Flew east to west, might have emerged from B2 gable end?	
<b>21:17</b>	Soprano pipistrelle	Foraging, east	
<b>21:19-21:27</b>	Common pipistrelle	Foraging, numerous passes	
<b>21:26</b>	Soprano pipistrelle	Constant foraging to survey end, east	

<b>21:31</b>	Common pipistrelle	<b>Emerged</b> at eaves B3, then foraged around garden
<b>21:34-21:45</b>	Common pipistrelle	Heard not seen, foraging with social calls, numerous passes
<b>21:45-21:54</b>	Natterer's	Heard not seen, close, numerous passes
<b>21:56-22:10</b>	Common pipistrelle	Foraging around garden
<b>22:13</b>	Natterer's	Heard not seen

*Visit 3*

<b>Location:</b>	<b>B3-B5</b>		
<b>Weather:</b>	25% cloud, 1BF, dry		
<b>Start temp:</b>	18°C	<b>End temp:</b>	14°C
<b>Date:</b>	28/08/2023	<b>Sunrise/sunset times:</b>	19:53
<b>Start time:</b>	19:40	<b>End time:</b>	21:31
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
<b>19:53</b>	Soprano pipistrelle	<b>Emerged</b> south elevation at eaves level	

*Visit 4*

<b>Location:</b>	<b>B3-B5</b>		
<b>Weather:</b>	100% cloud, 1BF, dry		
<b>Start temp:</b>	16°C	<b>End temp:</b>	14.3°C
<b>Date:</b>	14/09/2023	<b>Sunrise/sunset times:</b>	19:18
<b>Start time:</b>	19:03	<b>End time:</b>	20:45
<b>Time</b>	<b>Species</b>	<b>Notes (flight path, emerging/re-entering, location observed, behaviour)</b>	
		No emergences or re-entries	



## Appendix C: Photographs

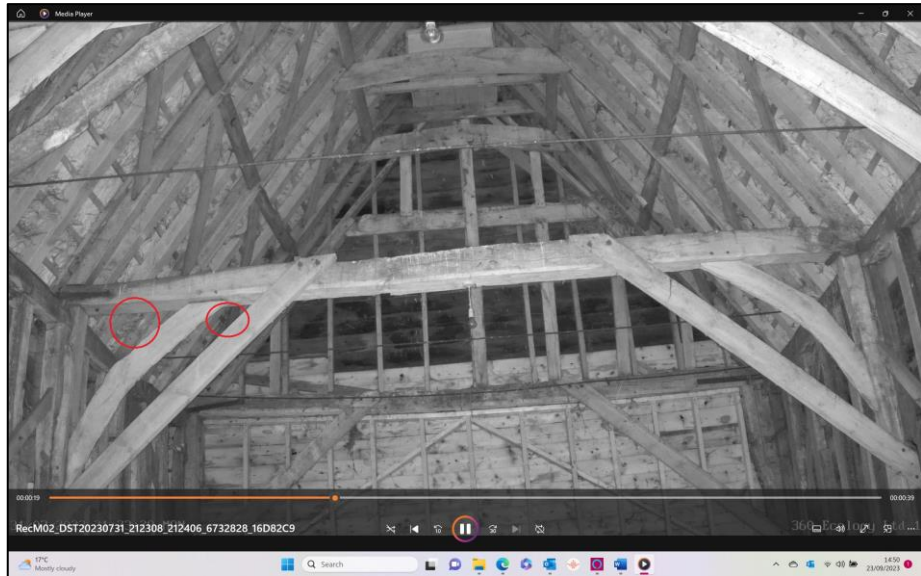


Figure 3: Emergence locations (red circles) noted on 31<sup>st</sup> July 2023 from inside B1.



Figure 4: Location of bat inside beam joint in B1 prior to 14<sup>th</sup> September emergence survey, shown by red arrow.



Figure 5: Locations of bat emergences during surveys on B1 shown by black arrows on thermal camera image.



Figure 6: Locations of bat emergences from B2 gable end shown by red arrows.