

# **ECOLOGICAL IMPACT ASSESSMENT**

**and Bat Activity Surveys**



**Byways,**

**Penrhos,**

**Monmouthshire**

A Report for

Mr D. Preece

<b>Report Information</b>	
<b>Project name</b>	Ecological Impact Assessment and Bat Activity Surveys for Byways, Penrhos, Monmouthshire
<b>Project reference:</b>	KG2021/055
<b>Status:</b>	Final v3 <b>Date of Issue:</b> 29 <sup>th</sup> July 2022
<b>Produced by:</b>	Katie McMinn BSc (Hons) MCIEEM
<b>Reviewed by:</b>	Joshua Evans BSc (Hons) MCIEEM, Consultancy Manager, Worcestershire Wildlife Consultancy
<b>Prepared for:</b>	Mr D. Preece

## Summary

<b>Site</b>	This report has been produced for Mr D Preece for the proposed alterations to Byways, Penrhos.
<b>Survey Methods</b>	<p>An extended Phase I survey was conducted on 29<sup>th</sup> March 2022 by Katie McMinn (NRW Bat licence: S088350/1).</p> <p>A SEWBReC biodiversity records search for bats and roof-nesting birds was conducted as part of the desk study.</p> <p>Three bat roost surveys on 9<sup>th</sup> and 26<sup>th</sup> May 2022 and 16<sup>th</sup> June 2022.</p> <p>The information is true to the data collected at the time of the surveys in 2022. The surveys undertaken are considered to retain validity for 12-18 months from the date of issue. An additional assessment and potentially a further activity survey to confirm any substantial change at the site is likely required after this period.</p>
<b>Survey Results</b>	<p>Bat droppings were found against the chimney breast within the loft space. The droppings had fallen through gaps in the insulation.</p> <p>There are gaps in the lead work possibly leading under tiles around the chimney. There are gaps leading under the roof end cap tiles. There are gaps and crevices around features associated with all 5 of the dormer windows.</p> <p>Bat surveys identified 8 roost locations used by single pipistrelle bats, One roost location used by a single soprano pipistrelle and one roost location used by a Brandt's bat. Only one roost location was used by 2 bats, all other locations were used by a single bat. The roosts were located under the end roof tiles of either gable and the northwest dormer window.</p> <p>The end tiles were used by nesting bluetit, the dormer windows are used by nesting house sparrow.</p>
<b>Discussion</b>	<p>The proposed works are to remove the existing dormer windows on both the northwest and southeast elevations, to be replaced with single full length dormer windows along either elevation. The roof tiles will be replaced. There will be an extension off the southwest gable.</p> <p>The pipistrelle and Brandt's bat roost locations under the end tiles of the northeast and southwest gable will be within 20cm of the proposed dormer windows. There is potential to recreate current roost locations in the new roof materials.</p> <p>The three pipistrelle roost locations along the north edge of the southwest gable will be permanently lost by the proposed extension.</p>
<b>Mitigation Measures</b>	<p>Bats: Timing of roof works</p> <p>Birds: Timing of roof works</p>
<b>Compensation Measures</b>	Bats: Creation of roost opportunities under bargeboards at both gable ends. x1 bat box in the proposed extension.
<b>Licensing requirements</b>	Natural Resources Wales development licence required.
<b>Biodiversity Enhancements</b>	<p>Bats: x3 bat boxes fitted to gable ends and dormer window.</p> <p>Birds: x1 house sparrow terrace, x2 general nest box</p>

## Protected species survey summary and assessment form

<b>Applicant name</b>	Mr D. Preece	
<b>Site name</b>	Byways, Penrhos, Monmouthshire	
<b>Site grid reference</b>	SO 4017 1244	
<b>Consultant name and survey licence number</b>	Katie McMinn: GCN licence: S088349/1 and bat licence: S088350/1	
<b>Planning application type (if known)</b>	Householder	
<b>Planning application reference (if known)</b>		
<b>Briefly state the purpose of the report (including client's brief) and the work undertaken.</b>		
<p>Extended phase 1 and bat roost survey to inform the ecological survey requirements. Avoidance and biodiversity measures for the proposed extension and additional works. Work undertaken: Extended Phase 1 survey (P1 habitat, Appraisal for bats, habitat suitability assessment for: birds, dormice, reptile, amphibians, and other mammals), three bat roost surveys, biodiversity records data search.</p>		
<b>Summary of the survey work undertaken:</b>		
<p>Please provide references to the published survey guidance followed:          Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. London: The Bat Conservation Trust.          JNCC (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. Peterborough: JNCC</p>		
<b>Survey Type</b>	<b>Dates</b>	<b>Departure from guidance*</b>
Phase 1 Habitat survey	29/03/2022	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Appraisal for Bats	29/03/2022	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bat roost survey, dusk	09/05/2022	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bat roost survey, dawn	26/05/2022	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bat roost survey, dusk	16/06/2022	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
*Any departure from guidance must be fully qualified within the main body of the report		

**Summary of the Reports Results:**

Please note: only record the negative presence of a species below if there is a medium or high likelihood of that species being present at the site. Please then provide your assessment of the 'likelihood of presence'\* below.

Species	Number	Likelihood of presence* (Low, medium, high)	Impact assessment (Low, medium, high)	Functionality of site (e.g. breeding, hibernation, resting place and/or place of shelter, foraging, dispersal routes)	Current conservation status of site (Favourable, unfavourable, or unknown)
P.pip	4	Medium	High	Resting place	
P.pyg	1	Medium	Medium	Resting place	
M.bra	1	Medium	Medium	Resting place	

**Summary of the report's recommendations and conclusions:**

Bat roost surveys identified x8 common pipistrelle, x1 soprano pipistrelle, and x1 Brandt's bat sporadic, single-bat non-maternity roosts located at both gable ends and in one dormer window.

NRW development licence required for works to proceed. Roosts will be lost or recreated through the proposed works.

Requirement for mitigation and compensation measures, including recreating roosts in existing locations and bat boxes

Requirement for biodiversity enhancements through wildlife boxes for crevice-dwelling bats, house sparrow and blue tit.

Please fill answers as Yes / No / blank for N/A

Species	Has the report identified the need for the following measures?									Please fill out, for European Protected Species.		
	Avoidance	Mitigation	Compensation	Monitoring	Long term measures	Ecological Compliance Audit	Biosecurity measures	Further Survey Required?	Detrimental to FCS? *	EPS derogation licence required?	Is there a valid derogation purpose?	Are there satisfactory alternatives to the development?
P.pip	Y	Y	Y	N	N	Y	N	N	N	Y	Y	N
P.pyg	Y	Y	Y	N	N	Y	N	N	N	Y	Y	N
M.bra	Y	Y	Y	N	N	Y	N	N	N	Y	Y	N

Please confirm whether there are any further details (for example. reserved matters, by condition) to be submitted and provide details below:

No

Name

Katie McMinn

Date

29<sup>th</sup> July 2022

## Contents

Protected species survey summary and assessment form .....	4
1 Introduction .....	8
2 Site Location .....	8
3 Planning Policy and Legislation Context .....	9
4 Methodology .....	9
5 Baseline Ecological Conditions .....	11
6 Description of Proposed Works .....	17
7 Assessment of Impacts .....	18
8 Avoidance and Mitigation Measures.....	21
9 Compensation for Bat Roosts .....	21
10 Biodiversity Enhancements.....	22
11 References.....	22
12 Appendix 1: Bat Survey Results .....	23
13 Appendix 2: Proposed bat roost locations .....	25

## Figures

Figure 1: Location map for Byways, Dairy Farm Road, Penrhos.	8
Figure 2: Northeast elevation showing proposed dormer window and edge of roof detail. Not to scale.	19
Figure 3: Proposed southwest gable. The left half of the gable will be extended, with loss of existing roost locations. The right half of the gable will be retained with the roof replaced with a change in materials.	19
Figure 4: Northeast gable showing emergence and entry activity to bat roosts. All bats emerged and flew west to hedgerow.	23
Figure 5: Southwest gable showing emergence and entry activity to bat roosts. All bats emerged and flew west to hedgerow.	23
Figure 6: Northwest elevation showing emergence activity from bat roost. All bats emerged and flew west to hedgerow.	24
Figure 7: Showing key flight paths observed during the three roost activity surveys.	24
Figure 8: Northeast gable showing bargeboards and location of bat box.	25
Figure 9: Southwest gable showing bargeboard and locations of bat box	25
Figure 10: Southeast elevation showing location for Kent-style bat box on dormer window.	26

## Plates

Plate 1: Northwest elevation and garden.	12
Plate 2: Southeast elevation showing decking against lawn.	12
Plate 3: Roof tiles and chimney on the northwest elevation.	12
Plate 4: Northwest elevation.	12
Plate 5: Southeast elevation.	13
Plate 6: Side loft against chimney breast.	13

## **Tables**

Table 1: Protected species field surveys.	11
Table 2: Summary table for impacts and avoidance/mitigation measures required	20

## 1 Introduction

This report has been produced for Mr D. Preece to provide an Ecological Impact Assessment for the proposed alterations to the dwelling Byways, Penrhos.

The dwelling, Byways is subject to a planning application to make alterations internally and externally convert as part of improvements to the property.

This report has been commissioned to:

- Identify evidence of/potential for protected species.
- Identify if the proposed works will affect protected species.
- Requirement for a Natural Resources Wales development licence for protected species; and
- Set out biodiversity enhancement measures appropriate for the intended works.

The surveys were conducted by Katie McMinn BSc (hons) MCIEEM, she holds a Cyfoeth Naturiol Cymru/ Natural Resources Wales (NRW) great crested newt survey licence: S088349/1 and NRW bat survey licence: S088350/1. Katie has been conducting Phase I Habitat surveys and National Vegetation Classification (NVC) surveys, bat surveys and great crested newt surveys over the past 10 years. KG Ecology are a registered practice, listed in the Chartered Institute of Ecology and Environmental Management (CIEEM).

## 2 Site Location

The dwelling Byways, hereafter referred to as the Site, is a detached dwelling, located on the access track also leading to Ysgubor-Lan, on Dairy Farm Road, near Penrhos, Monmouthshire, NP15 2DF at NGR: SO 4017 1244.

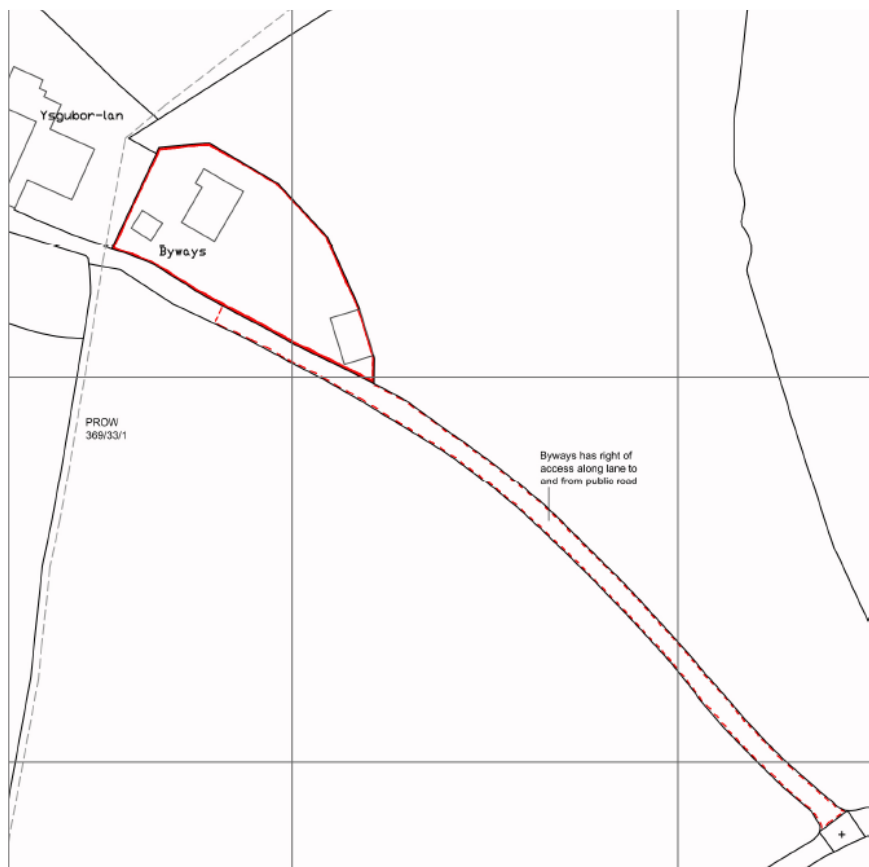


Figure 1: Location map for Byways, Dairy Farm Road, Penrhos.



### 3 Planning Policy and Legislation Context

The **Natural Environment and Rural Communities (NERC) Act 2006** includes a duty on local authorities to regard biodiversity conservation as a material consideration within the planning process. Section 42 of the NERC Act protects those species and habitats of principal importance for the purpose of conserving biodiversity in Wales.

In Monmouthshire legislation is informed in part by the following planning policies, which include a requirement to inform the application process in view of ecological features and sets out “*a public authority must seek to maintain and enhance biodiversity in the exercise of their functions*”:

- Planning Policy Wales (Edition 11, February 2021) requirements
- Technical Advice Note 5, Nature Conservation and Planning (Welsh Assembly Government, 2009); and
- The Environment (Wales) Act 2016 Section 6: Biodiversity and resilience of ecosystems duty (S6 duty)

**The Conservation of Habitats and Species Regulations 2017** transcribes the European Commission Habitats Directive into UK law. Species listed under Schedule 2 of these regulations are ‘European Protected Species’ (EPS). It is illegal to deliberately capture, kill, injure, or disturb an EPS animal. Breeding sites and resting places of EPS animals are also protected from reckless damage, destruction, and obstruction. Inclusion of EPS on Schedule 5 of the **Wildlife and Countryside Act (WCA) 1981** (as amended) strengthens the protection given to these species.

Common lizard, slow-worm and grass snake and are listed under Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended) which prohibits the intentional killing or injury of these animals.

The **Countryside and Rights of Way Act 2000** strengthens the species enforcement provisions of the WCA 1981 (as amended) and makes it an offence to ‘recklessly’ harm or disturb a place of rest or shelter of a protected species.

Under the WCA 1981 (as amended) all birds, their nests and eggs are protected during the breeding season from killing/destruction, damage, and disturbance. The bird breeding season is February to August.

### 4 Methodology

#### Desk study

The desk study was conducted in March 2022. Ordnance Survey maps and aerial photographs were used to provide context of the Site location, current and historic land use and identify local habitat features.

The Multi Agency Geographic Information for the Countryside (MAGIC) website (Natural England, 2002) provided statutory and non-statutory nature conservation sites within a 1km radius of the Site.

A biodiversity data search for bats (2km), roof-nesting birds (150m), and sites designated for bats within 10km, was received from the South East Wales Biological Records Centre (SEWBRc) on 28<sup>th</sup> June 2022 (LERC reference: 0223-218).

#### Field Survey

The building inspection and field survey were conducted on 29<sup>th</sup> March 2022 by Katie McMinn.

#### *Phase 1 Habitat survey*

A Phase I Habitat survey was conducted at the Site and habitats adjacent to the Site. The survey used the standard methodology as set out by the JNCC Phase I Habitat Handbook. The Site, including the length of each boundary, was walked over with the dominant habitat areas recorded and target notes used for smaller features of interest. Species lists were recorded for the dominant habitat areas with relative abundance of plants noted using DAFOR scale (Dominant/ Abundant/ Frequent/ Occasional/ Rare).

#### *Building inspection for bats*

An appraisal for bat roosts was conducted using methodologies detailed by current good practice guidelines (Mitchell-Jones and McLeish, 2004, Collins, 2016 and PCC, 2004). The assessment involved a detailed visual inspection of internal spaces and external building features of the site. The inspection was aided by binoculars, ladder, digital endoscope and one million candle power clu-lit torch. A careful examination was undertaken of building for features such as gaps and crevices offering bat roost potential and a wider search for evidence of bat use, including bat droppings, staining by fur-oil or urine and in some cases the absence of cobwebs/debris. The presence of cobwebs and debris in roof voids or at access points tend to suggest a lack of use by bats although on its own this evidence is not conclusive. Bat droppings found by the inspection were assessed as fresh or old based on appearance. 'Fresh' droppings are estimated to be under 1 season old, are shiny black and moist in appearance/texture, 'old' droppings are estimated to be over 1 season old, are dull, dry or degraded.

**Bat dropping DNA analysis:** Where bat droppings were accessible and in sufficient number, bat droppings were collected from the Site and sent for DNA analysis by the University of Warwick, (EcoWarwicker Ecological Forensics).

Photographs were taken of the Site and surroundings to record condition, features of interest and bat evidence.

Current Bat Survey Guidelines suitability categories 'Negligible', 'Low', 'Moderate' and 'High' are used to summarise the bat roost of the Site. The suitability categories are used to indicate potential bat roost sites, based on the presence and condition of habitat features, landscape and applied professional judgement (Collins, J., 2016).

#### *Bat Activity Survey*

The Site has been assessed as a 'Moderate' Suitability site for bat roosts based on the building inspection conducted on 29<sup>th</sup> March 2022. Three bat activity surveys were conducted through May and June 2022. The surveys were conducted by Katie McMinn (NRW bat survey licence: S088350/1), Joshua Evans (Worcestershire Wildlife Consultancy, Consultancy Manager, NRW bat survey licence: 70380:OTH:SA:2016), Moyrah Gall and Megan Abram.

The timing, number of surveys and surveyors were conducted in accordance with the Bat Survey Guidelines (Collins, 2016) and based on the assessment of the buildings containing bat droppings and having of 'Moderate' suitability features.

The Site is a detached bungalow with dormer windows with the proposals affecting large areas of the roof and dormer windows of both elevations.

Bat detectors, along with flight patterns, were used to identify bat species observed during the emergence survey. A Fledermaus-Detector SSF BAT<sub>2</sub> bat detector, Pettersson 240x, and Wildlife Acoustics Echo Meter Touch 2 were used, operating using heterodyne and frequency division scanning simultaneously. The Echo Meter Touch 2 provided recording of bat calls, reviewed through their app. A Titley AnaBat Express (a broad-band microphone recording frequency division) was used on site to record bat calls. The recorded files were downloaded and analysed using zero-crossing analysis in Anabat Insight software, aided by call identification reference books (Russ, 2012).

Temperature and weather conditions were recorded at the start, at sunset, and end of each survey.

#### Protected species

A search was conducted for evidence of protected and priority species at the Site and within surrounding adjacent habitats. This included recording actual sightings, evidence of activity by protected/priority species (foraging/ droppings and latrines/ shelters/ hairs/ sloughed skin) and habitat suitable for supporting breeding and sheltering activities.

An inspection for bird nest activity and appraisal for nesting potential was made of the features within the Site.

Species	Summary of field survey conducted
Bat species	Assessment of buildings/trees and habitat to support bat roosts and foraging/commuting activity (further detail below).
Dormouse	Assessment of the likely value of the hedgerows for dormice. Search for chewed hazel nuts along hedgerows adjacent to the Site.
Badger	Assessment of the likely value of the habitat features for badger. Search within 100m of the Site for badger setts and foraging/latrine activity.
Otter	Assessment of the likely value of the watercourse for otter and water vole
Water vole	
Reptiles	Assessment of the likely value of the habitat features for reptiles and amphibians
Great crested newt	

Table 1: Protected species field surveys

## 5 Baseline Ecological Conditions

### Desk Study

There is one designated site protected for ecological features within 1km of the Site:

- Lower Ground, Penrhos Site of Scientific Interest (SSSI) located c.700m to the northeast of the Site

The desk study identified two SSSI/SAC site that is designated for bat features are within 10km of the Site:

- Llangovan Church SSSI, located c.8.5km to the southeast of the Site. The site is a summer roost for lesser horseshoe bat. The site is part of the Wye Valley and Forest of Dean Bat Sites Special Area of Conservation (SAC).
- Wye Valley Lesser Horseshoe Bat Site SSSI, located c.9km to the southeast of the Site. The site is a summer roost for lesser horseshoe bat. The Wye Valley Lesser Horseshoe Bat Site SSSI comprises of four individual sites of national importance for lesser horseshoe bat.

### Local landscape

Three ponds were identified within 500m of the Site using OS map, aerial imagery, and field survey. Pond 1 is 70m to the northwest within woodland. Ponds 2 and 3 are located along field boundaries. There are 20 ponds 500-1km from the Site, the ponds are associated with farmyards and located with fields.

The Site is located on an access track, neighbouring the dwelling Ysgubor-Lan, a barn conversion. The Site is in a dark location without streetlights or external lighting. Habitats within 500m include semi-improved grazed and arable fields. The fields are bound by hedgerows with trees, leading out to small areas of woodland. There are orchards located 500m to the north of the Site.

The Site is located at approximately 80m above Ordnance datum.

### Habitats

The Site is a detached dwelling within a garden boundary with a detached garage. The dwelling has sections of paving, timber decking and gravel against each elevation. There is a stone retaining wall against the northeast gable and northwest elevations. There is a tarmac driveway against the southwest gable. The southeast elevation is against timber decking and a managed lawn. The paving is all in good condition without significant crevices. There are managed shrubs and flower beds around the dwelling.

The garden is bound by wooden fencing and hedgerows.



Plate 1: Northwest elevation and garden.



Plate 2: Southeast elevation showing decking against lawn.

### Building description

#### *External*

The Site is orientated northeast-southwest along the ridgeline. The roof is pitched and clad in interlocking tiles. The tiles are in place, there are gaps leading under tiles against the chimney and against the dormer windows. There is a single dormer window on the northwest elevation and four on the southeast elevation. Each dormer window has hanging tiles with gaps and crevices in the dormer features.

The ridge tiles are in place and set in intact mortar without gaps. Both gable ends have tile end caps. The end caps have crevices between the render and tiles.

The walls of the Site are rendered and intact. The windows and doors of the dwelling have a tight seal to the render.



Plate 3: Roof tiles and chimney on the northwest elevation. Plate 4: Northwest elevation.



Plate 5: Southeast elevation.



Plate 6: Side loft against chimney breast.

### Internal

Internally there are rooms within the roof space, there is a sealed void above the height of the purlins. There is a single side loft on the northwest elevation. The loft is a small room against the chimney breast.

### Species and species groups

#### *Bats - Desk Study and Building Inspection*

The data search returned 29 records for bat species. There are no records for bats within 500m of the Site. Within 1km of the site there are records for a soprano pipistrelle and brown long-eared bat *Plecotus auritus* maternity roost, and roost records for common pipistrelle, soprano pipistrelle, and lesser horseshoe bat *Rhinolophus hipposideros*.

The owner informed this report that the farm Ysgubor-Lan has a maternity roost for a pipistrelle sp..

Bat droppings were found on the chimney breast in the loft. The droppings have fallen through a gap in the insulation from crevices associated with the chimney and bitumen felt. The droppings appear old (over 1 season old).

There are gaps and crevices within the roof tiles, particularly against the chimney, and at both gable ends under the end cap tiles. All five dormer windows have tiles with lifted edges, and crevices associated with the lead work and hanging tiles.

The Site is within 26m of a woodland copse with connections to hedgerows leading out into the wider landscape.

The hedgerow and tree network surrounding the Site extends throughout the local area, connecting to orchards, lines of trees, woodland, and extensive pond network in the wider landscape, and providing commuting and foraging opportunities for local bat populations.

## Bats - Bat Roost Surveys

The Site was assessed as offering 'Moderate' Suitability for a bat roost with droppings present against the chimney breast. As such three bat surveys were undertaken to characterise the bat roost.

The surveyors were located at the north (Surveyor 1) and south corner (Surveyor 2) of the site to allow visibility of the roof features of interest. Appendix I shows locations of bat roost emergence/entry activity.

Survey	Date	Start time / end time	Start/ Sunset/ end temp	Weather
Dusk 1	9 <sup>th</sup> May 2022	20:30/ 22:15	16°C/14°C/13°C	75% cloud. Dry, light breeze.
Dawn	26 <sup>th</sup> May 2022	03:05/ 05:05	12°C/ 11.7°C	25% cloud. Dry, light breeze.
Dusk 2	16 <sup>th</sup> June 2022	21:10/ 23:15	24°C/23°C/ 17.5°C	70% cloud. Dry, light breeze.

### Activity Survey (Dusk 1) 9<sup>th</sup> May 2022, sunset: 20:48

Time	Details	Species	No. Bats	Surveyor	Behaviour
21:10	Pass	Noctule	1	1&2	Faint call, not seen.
21:12	Emerged	Common pipistrelle <i>Pipistrellus pipistrellus</i>	1	1	From northeast gable of the house, east elevation, between the tile and render. Flew west, following hedge line.
21:17	Emerged	Common pipistrelle	1	1	As above
21:30	Pass	Common pipistrelle	1	2	Flew along road to house, south-north.
21:32	Pass	Noctule	1	1	Flew over at tree height, east-west.
21:32	Pass	Common pipistrelle	1	2	Flew along road to house, south-north.
21:33	Foraging	Common pipistrelle	1	1	Foraging around garden.
21:36	Pass	Common pipistrelle	1	2	Flew along road to house, south-north.
21:37	Foraging	Common pipistrelle	1	1	Foraging over garage to southwest.
21:49	Foraging	Common pipistrelle	1	1	Foraging over the house.
21:52-21:58	Foraging	Common pipistrelle	1-2	1	Foraging along hedgerow/garden.
21:57	Pass	Common pipistrelle	1	2	Not seen.
22:05	Pass	Soprano pipistrelle	1	1	Not seen.

**Summary:** Two common pipistrelle emerged from the northeast gable end of the Site, from under a tile cap.

Occasional common pipistrelle foraging activity. Noctule and soprano pipistrelle heard/seen at rare frequency through the survey.

AnaBat Express recordings and Echo Meter Touch 2 confirmed species recorded and no additional species calls.



Activity Survey (Dawn) 26<sup>th</sup> May 2022, sunrise: 05:05

Time	Details	Species	No. Bats	Surveyor	Behaviour
03:43	Pass	Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	1	2	Not seen.
03:50	Foraging	Common pipistrelle	1	1	Flew along hedgerow to north, behind surveyor.
04:00	Pass	Soprano pipistrelle	1	2	Not seen.
04:07	Pass	Big bat?	1	2	Seen flying high over field, no calls heard.
04:10- 04:16	Pass	Whiskered/Brandt's bat <i>Myotis mystacinus/brandtii</i>	1	1&2	Flying around NE gable and along SE elevation – investigating windows and gable end? Flying close to the building and around garden before flying NW off site.
04:18	Exploring roost	Common pipistrelle	1	2	Flying around drive, inspecting end cap tile on N side of the SW gable.
04:21	Entered	Common pipistrelle	1	2	Entered end cap tile near the ridge line, SW gable.
04:23	Entered	Common pipistrelle	1	2	Entered end cap tile at SW gable end, 4 <sup>th</sup> tile up on north side.
04:33	Pass	Noctule	1	1&2	Flew high, over site S-W
04:34	Entered	Common pipistrelle	1	1	Entered end cap tile at NE gable, 3 <sup>rd</sup> tile up on south side.
04:35	Entered	Common pipistrelle	1	1	Entered end cap tile at NE gable, 3 <sup>rd</sup> tile down on north side.

**Summary:** Four common pipistrelle entered four separate roost points. All roosts are under the end cap tiles, two at the northeast gable and two at the southwest gable.

Occasional soprano and common pipistrelle foraging activity and passes through the survey. Noctule flew over the site. A Whiskered/Brandt's bat flew around the site and garden before flying north off site.

AnaBat Express recordings (located near surveyor 1) and Echo Meter Touch 2 (surveyor 2) confirmed calls of pipistrelles and indicated the myotis calls were likely Brandt's bat.

Activity Survey (Dusk 2) 16<sup>th</sup> June 2022, sunset: 21:32

Time	Details	Species	No. Bats	Surveyor	Behaviour
21:33	Emerged	Common pipistrelle	1	2	Emerged from edge roof tile on southern edge of southwest gable.
21:34	Emerged	Common pipistrelle	1	1	Emerged from edge roof tile on northeast gable.
21:41	Commuting	Noctule	1	1&2	Flew over fields to north of the Site.
21:48	Emerged	Pipistrelle sp.	1	1&2	Emerged from northwest dormer window.
21:50	Foraging	Noctule	1	1&2	Flying south and west of the Site.
21:50	Emerged	Soprano pipistrelle	1	2	Emerged from edge roof tile on southern edge of southwest gable.

21:52	Foraging	Common pipistrelle	1	2	Foraging along driveway.
21:54	Entered	Common pipistrelle	1	2	Foraging in driveway and then entered southwest gable ridge tile.
21:55	Emerged	Common pipistrelle	1	1	Emerged from edge roof tile (2 <sup>nd</sup> tile up on southern side)
21:54	Emerged	Common pipistrelle	1	2	Emerged from southwest gable ridge tile.
22:05	Emerged	Brandt's bat <i>Myotis brandtii</i>	1	1	Emerged from edge roof tile (6 <sup>th</sup> tile up on southern side)
22:01 - 22:39	Foraging	Common pipistrelle	2	2	Sporadic, regular foraging in garden and yard off southwest gable.
22:09	Commuting	Myotis sp.	1	2	Flew along lane by the hedgerow.
22:18	Foraging	Common pipistrelle	1	1	Foraging around northeast gable
22:20	Foraging	Common pipistrelle	1	1	Foraging around northeast gable
22:41	Commuting	Common pipistrelle	1	1	Across garden to field hedgerow.
22:49	Commuting	Common pipistrelle	2	1	From field across garden.
22:56	Foraging	Common pipistrelle	1	1	Foraging over garden and hedgerow.

*Summary:* Two common pipistrelle emerged from the edge roof tile (southern side) of the northeast gable. Two common pipistrelle emerged from the edge roof tiles (two separate roost locations) of the southwest gable. One common pipistrelle entered and re-emerged from the ridge tile of the southwest gable.

One soprano pipistrelle emerged from the northwest dormer window.

One Brandt's bat emerged from different edge roof tiles at the northeast gable. The Whiskered/Brandt's bat was identified as likely Brandt's by recorded calls on Echo Meter Touch 2.

AnaBat Express recordings (located near surveyor 2) and Echo Meter Touch 2 (surveyor 1) confirmed calls of pipistrelles, noctule and indicated the Myotis calls were likely Brandt's bat.

#### *Amphibians*

The patio and tarmac off the southwest gable within and in proximity to the work area of the proposed extension are intact and without suitable features for amphibian species.

#### *Birds*

The data search returned no records for 'roof-nesting' birds within 150m of the Site.

There are house sparrows nesting in the dormer windows.

There is a blue tit nesting in the southwest gable.

#### *Other protected or priority species*

No further habitats or features with potential for protected species were recorded by the survey.



## Limitations

### *Desk Study*

The desk study is informed in part by biodiversity data held by BIS. Biodiversity datasets by their nature are incomplete but provide the best available data to aid an ecological assessment. Records provide information on species that have been submitted as a record, however it cannot provide evidence of absence for a site (CIEEM, 2020 and Collins, 2016).

The desk study used OS map, aerial imagery, and field survey to aid identification of ponds in the local area. A precautionary approach to the appraisal for amphibians has been taken to address potential impacts to amphibian species present in the local environment (within 500m) of the Site.

### *Field survey*

The field surveys for a preliminary bat appraisal have no restrictions of timing within the year. A single site visit provides a single 'snapshot' on which to base a preliminary ecological appraisal.

External inspections for evidence of bats can be strongly affected by detectability i.e., droppings washed away, or not visible from the point of inspection. Internal inspections are impacted from detectability to a lesser degree as field evidence can remain intact for much longer periods, if left undisturbed. To counter these limitations, the building inspection has a strong focus on identifying features and assessing the requirement for further survey based on the suitability of features for a bat roost (Collins, 2016).

For the field survey, access was gained to all external features of the site using appropriate equipment.

Bat roost surveys, for summer roost activity, are restricted to May-September. The surveys provide a snapshot of activity at the Site, conducting multiple surveys can establish details on how bats use a site. The number of bat surveys, 'survey effort' was based on the presence of bat droppings and presence of bat roost activity. Three surveys are appropriate for a 'high' suitability site under current guidelines is considered a reasonable survey effort to establish characteristics of the bat roosts present. Bats are long-lived, mobile species, as such the survey data presented should be considered valid for 12-18 months from the date of the surveys.

For this Site, the limitations set out above have been taken into consideration in setting out appropriate further survey requirements.

## **6 Description of Proposed Works**

Proposed works are to:

- Replace the roof, replacing the existing dormer windows of both elevations with full length dormer windows.
- Construct extension off southwest gable.
- No trees or hedgerows will be felled as part of the proposed works.

## 7 Assessment of Impacts

An assessment of impacts resulting from the proposed works on species potentially impacted by the proposed works, and any need for avoidance measures are discussed and set out below.

### Designated Sites

The application site is a significant distance from designated sites in the local area. The closest SSSI site boundary is 700m (Lower Ground, Penrhos).

Potential pollution of a designated site is assessed as negligible due to distance and localised nature of the work.

Pollution prevention measures to prevent localised ground pollution will be required throughout demolition and construction works.

To prevent localised ground pollution, all demolition and construction works will be conducted following pollution prevention measures informed by the Guidance for Pollution Prevention (GPPs) series:

- GPP 1: Understanding Your Environmental Responsibilities - good environmental practices (October 2020).
- PPG 6: Working at construction and demolition sites (2012) (PPG as not yet updated to a GPP).

As a minimum, the following measures are required: Fuel, oil, and chemical storage must be sited on an impervious base within a bund and secured. The base and bund must be impermeable to the stored substance by of an adequate capacity. Leaking or empty containers must be removed from the site immediately and disposed of in an appropriate manner. Any accumulation of fuel or chemicals in drip trays must be removed through appropriate disposal methods.

Risk of spilling fuel it at its greatest when refuelling plant. Where possible, refuel mobile plant in a designated area, preferably on an impermeable surface located away from drains or watercourses.

### Bats

All bat species in the UK, including places of rest, are protected by law under The Conservation of Habitats and Species Regulations 2017. It is unlawful to demolish or disturb structures where a bat roost may be present within first conducting sufficient surveys and mitigation. Where bats are known to roost and damage/loss of a roost and/or disturbance of bats will occur works must be carried out under an NRW development licence. Where surveys identify bats are likely absent, or in situations where works can proceed without disturbing bats or loss/damage to a roost site, an NRW development licence is not required.

**Northeast gable:** There are three non-maternity 1 or 2 individual common pipistrelle roosts under the edge tiles of the gable. There is one non-maternity single bat Brandt's bat roost under the edge tile of the gable. Whiskered/Brandt's bats are hard to differentiate in the field, accurate identification is only possible through in-hand identification or droppings DNA analysis. These options were not available at this Site, calls were recorded on two surveys from bats emerging or searching for a roost location, automatic and manual analysis of these calls suggested closer alignment to Brandt's bat call characteristics and have been used to establish myotis species identification.

All four roost locations will be located 200mm from the edge of the proposed dormer window, Figure 2. The tile end caps that create the roost will be removed through the proposed works. The roof tiles will be replaced with slate tiles without overhanging end caps.

There is potential for roost crevices to be created in similar locations at the gables through the addition of bargeboards. Bargeboards would create similar crevices to the endcap tiles and would have no contact with breathable roofing membrane which is harmful to bats.

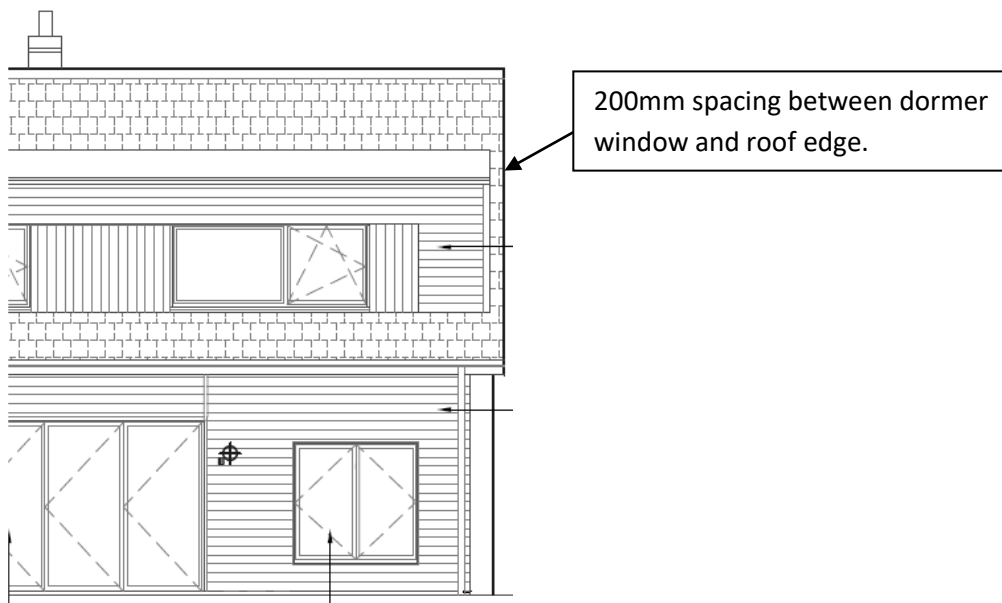


Figure 2: Northeast elevation showing proposed dormer window and edge of roof detail. Not to scale.

**Southwest gable:** There are two common pipistrelle and one soprano pipistrelle single bat non-maternity roosts along the north edge of the gable. These three roost locations will be lost through the proposed southwest gable extension (Figure 3).

There are two common pipistrelle single bat non-maternity roosts along the southern edge of the gable. These two roost locations will be located 200mm from the edge of the proposed dormer window. The tile end caps that create the roost will be removed through the proposed works. The roof tiles will be replaced with slate tiles without overhanging end caps.

There is potential for roost crevices to be created in similar locations at the gables through the addition of bargeboards. Bargeboards would create similar crevices to the endcap tiles and would have no contact with breathable roofing membrane which is harmful to bats.

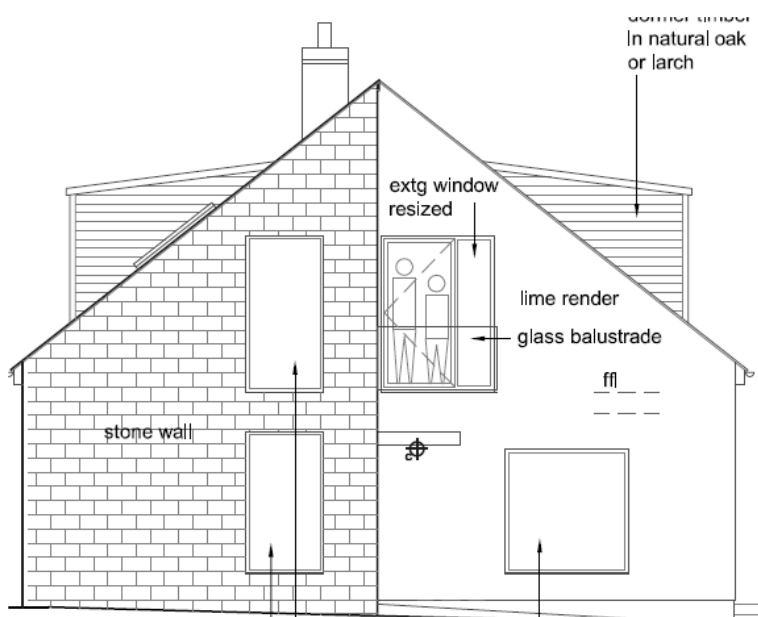


Figure 3: Proposed southwest gable. The left half of the gable will be extended, with loss of existing roost locations. The right half of the gable will be retained with the roof replaced with a change in materials.

**Northeast elevation:** There is one pipistrelle sp. non-maternity single bat roost in the hanging tiles of the northeast elevation dormer window.

The dormer window will be lost through the proposed works. The roof will be replaced, and larger dormer windows installed along the elevation.

Overall, the Site provides multiple and varied roost opportunities for non-breeding female and male bats. There is a pipistrelle sp. maternity roost in the neighbouring farm buildings, as such this Site has high potential to support the maternity roost, providing roosts for pipistrelle males and non-breeding females.

Avoidance, mitigation, and compensation measures will be required to minimise direct impacts to the bat roosts and to create new roost opportunities within the proposed features. All species roosting at the Site are crevice dwellers, new roost opportunities, suitable for pipistrelle and myotis species can be created through creating crevices under bargeboards and bat boxes.

**The proposed works will result in unavoidable loss of bat roosts and significant alteration of bat roosts, as such a Natural Resources Wales development licence is required for the proposed works.**

#### Birds

The site survey has identified active house sparrow and blue tit nest sites in the dormer windows and tile end caps at the gable. Active bird nests are protected from actions including disturbance, damage and loss whilst in use through the bird breeding season.

In the absence of avoidance and mitigation measures, the proposed conversion works have potential to damage or disturb an active bird nest. The proposed works will result in loss of the existing nest sites and compensation measures are set out to provide new nesting opportunities suitable for house sparrow and blue tit.

#### Summary

<b>Feature/ Species and identified impact</b>	<b>Avoidance and mitigation measures required</b>
<p>Bats</p> <p>Northeast gable: common pipistrelle and Brandt's bat non-maternity single-bat roosts</p> <p>Southwest gable: Common and Soprano pipistrelle non-maternity single-bat roosts</p> <p>Northwest elevation: Pipistrelle sp. non-maternity single-bat roost.</p>	<p>Timing of demolition/roof removal works.</p> <p>Removal of roof tiles to be overseen by ecologist.</p> <p>NRW development license required.</p> <p>Compensation: creation of new roost opportunities through bargeboards, fitted with a crevice behind, and bat boxes.</p>
<p>Birds:</p> <p>House sparrow and blue tit</p>	<p>Timing of demolition to avoid the bird nesting period.</p> <p>Compensation: appropriate bird boxes.</p>

Table 2: Summary table for impacts and avoidance/mitigation measures required

## 8 Avoidance and Mitigation Measures

### Bats

#### **Roof, including dormer windows**

Additional details for avoidance and mitigation methods will be provided through the Natural Resources Wales licence.

**Timing of work:** Works to demolish/remove the roof tiles and dormer windows will only be carried out between October-April inclusive. This period is outside the summer activity period for the bat species recorded at the site, minimising the potential to encounter a bat during the demolition process.

**Ecological clerk of works:** A suitably qualified ecologist will be present for the removal of roof tiles and dormer windows.

### Birds

**Timing of work:** Works to demolish/remove the roof tiles and dormer windows will only take place between September-February inclusive, outside the active bird nesting period.

## 9 Compensation for Bat Roosts

### Bats

The proposed works will result in the loss of roost locations used by soprano pipistrelle, common pipistrelle, and Brandt's bat. These three bat species are crevice-dwelling bats. The following roof features and bat boxes aim to compensate loss of existing features through creating similar crevices in the new roof and adding suitable crevices through bat boxes, Appendix 2.

The proposed new roof covering will be lined with breathable roofing membrane, to avoid contact with this material, that can harm bats, timber bargeboards will be fitted to allow for creation of a crevice against the wall render. This feature will create a safe roost location similar to the existing end cap tiles.

**Creating crevices in known roost locations:** Timber bargeboards, at least 150mm wide, will be fitted to either gable end. The boards will be fitted with a 20mm gap between the render and board to create a crevice features mimicking that of known bat roosts at both gable ends, Appendix 2.

Wooden blocks, the width of the bargeboards, will be fitted at intervals under the bargeboards to form x4 crevices 160mm x150mm x20mm in size. This will create crevices with varying environmental conditions.

**Bat boxes:** Bat boxes will be used to create crevice features suitable for pipistrelle and myotis species:

- x2 woodcrete bat boxes - bat boxes, suitable for crevice-dwelling species. One fitted to each gable apex. Suitable designs include Beaumaris woodstone 'maxi' bat box.

### Birds

The proposed works will result in loss of existing nest opportunities. To compensate for the loss the following bird boxes will be fitted:

- x2 house sparrow terrace - a terrace design box with at least x3 nest chambers to be fitted to the southeast elevation dormer window, under the soffit. Suitable designs include the House Sparrow Terrace FSC nest box by CJ Wildlife.
- x1 general bird box – single chamber bird nest box to be fitted to the southwest gable or garage.

## Compliance

Compliance with the avoidance measures, compensation measures, and biodiversity enhancements will be met through the NRW licence application and process. An ecological clerk of works and auditing of the proposed works will allow for appropriate removal of existing features and installation of new roost opportunities which are functional for crevice-dwelling bats.

## 10 **Biodiversity Enhancements**

Locations of the biodiversity enhancements have been set out on proposed elevation plans.

### Wildlife boxes

To provide biodiversity enhancements for priority species the following wildlife boxes will be incorporated into the scheme:

- x1 house sparrow terrace - a terrace design box with at least x3 nest chambers to be fitted to the northeast elevation dormer window, under the soffit. Suitable designs include the House Sparrow Terrace FSC nest box by CJ Wildlife.

### **Bats**

- x1 build-in bat box - build-in woodstone bat box, suitable for crevice-dwelling species, fitted into the stonework of the southwest gable extension, located as high on the wall as possible. Suitable designs include the Sergovia build-in woodstone bat box.

## 11 **References**

CIEEM (2020). *Guidelines for Assessing and Using Biodiversity Data*. Available at

[http://cieem.net/resource/guidelines\\_for\\_accessing\\_and\\_using\\_biodiversity\\_data](http://cieem.net/resource/guidelines_for_accessing_and_using_biodiversity_data) [02/08/2021].

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

Monmouthshire County Council (?). *Bats in buildings: Monmouthshire County Council Local Requirements*. Usk: Monmouthshire County Council.

Natural England (2002). *Magic Map Application. MAGIC*. Available at:

<https://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx> [02/08/21].

Russ, J. (2012). *British Bat Calls: A Guide to Species Identification*. Exeter: Pelagic Publishing.

Welsh Assembly Government (2009). *Planning Policy Wales, Technical Advice Note 5: Nature Conservation and Planning*. Cardiff: The Publications Centre.

## 12 Appendix I: Bat Survey Results

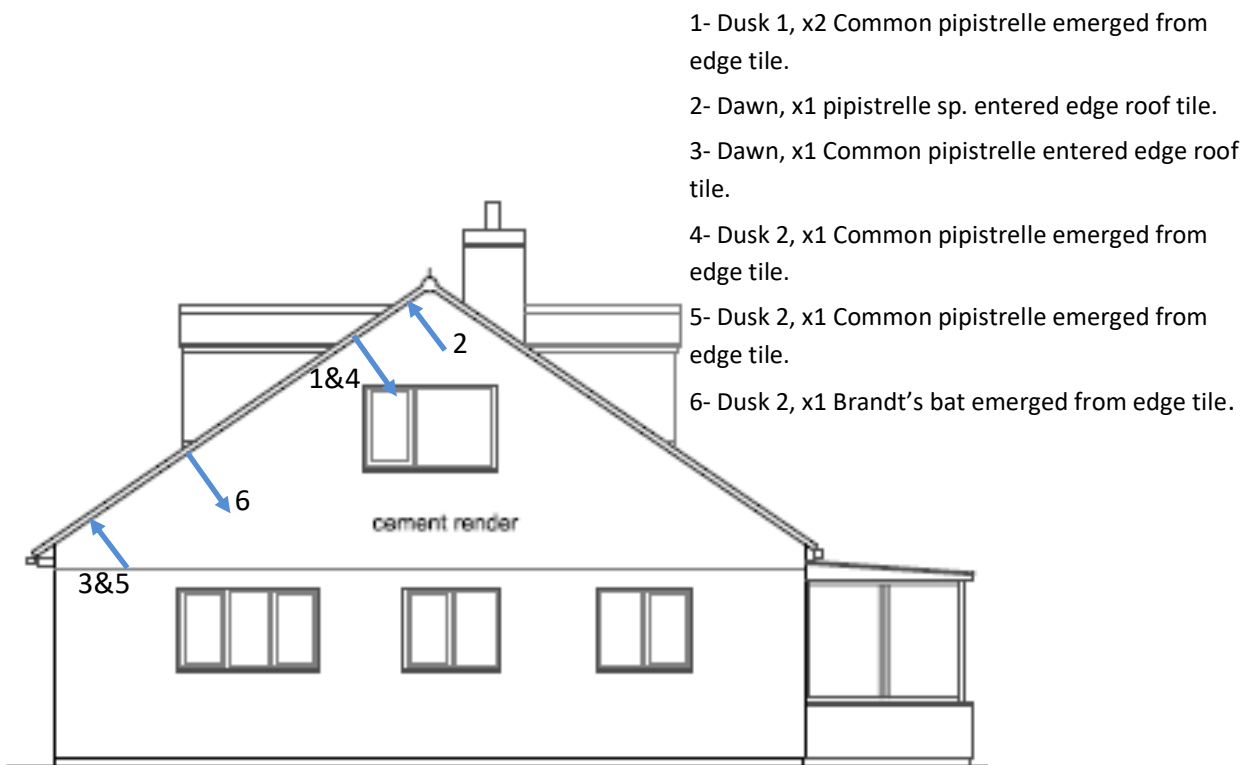


Figure 4: Northeast gable showing emergence and entry activity to bat roosts. All bats emerged and flew west to hedgerow.

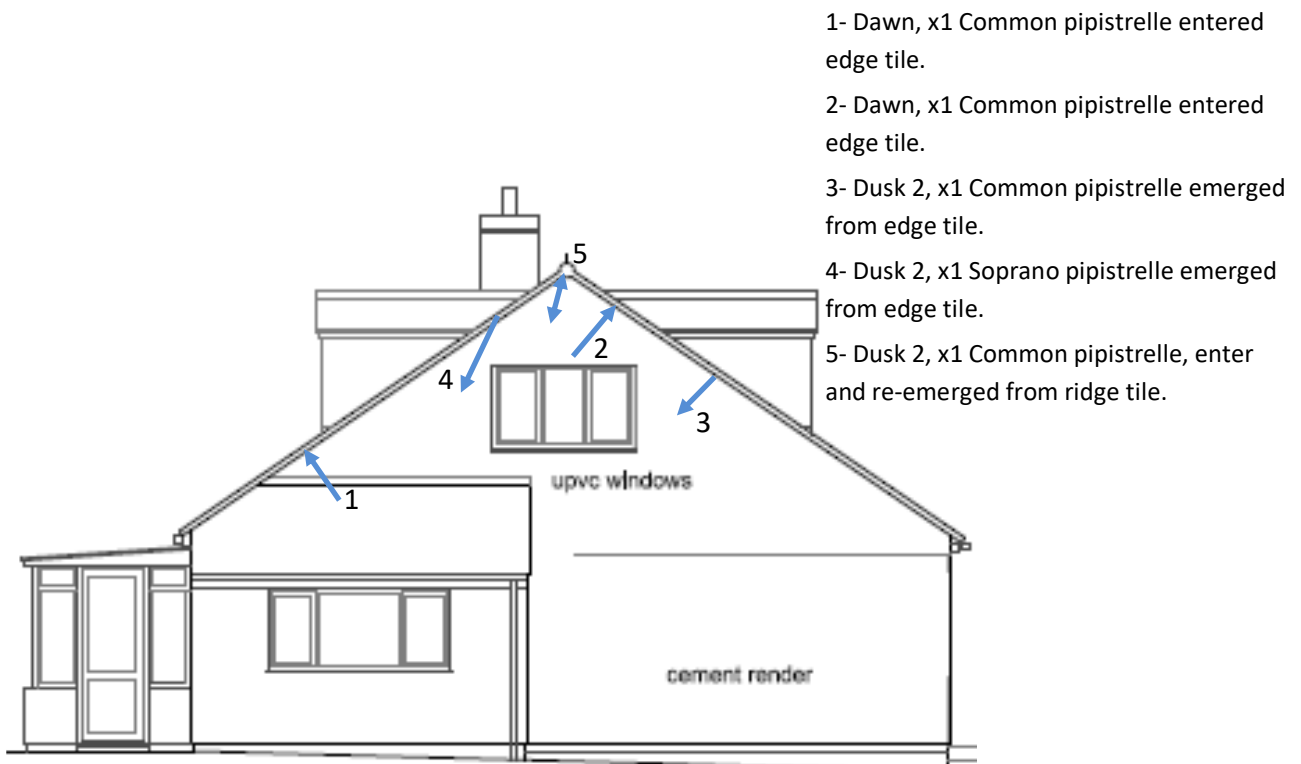


Figure 5: Southwest gable showing emergence and entry activity to bat roosts. All bats emerged and flew west to hedgerow.

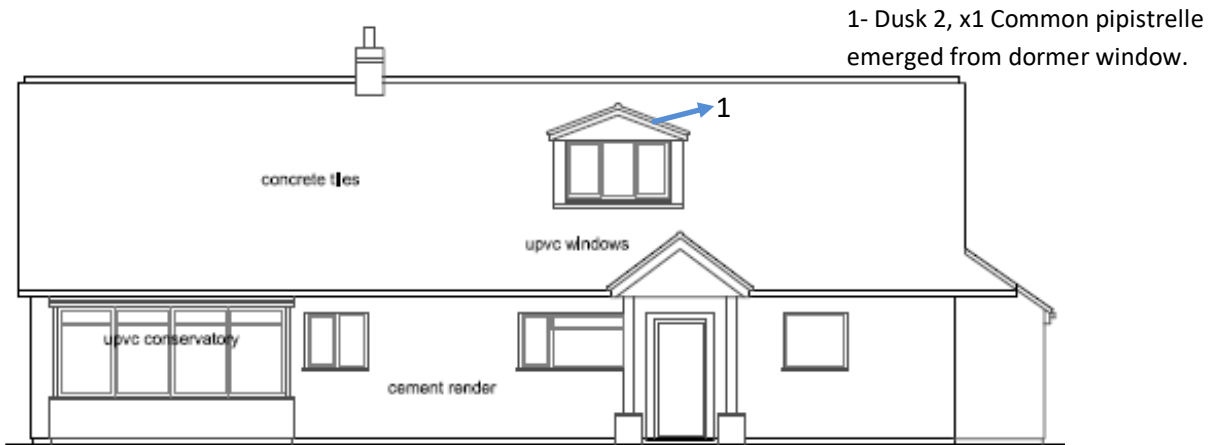


Figure 6: Northwest elevation showing emergence activity from bat roost. All bats emerged and flew west to hedgerow.

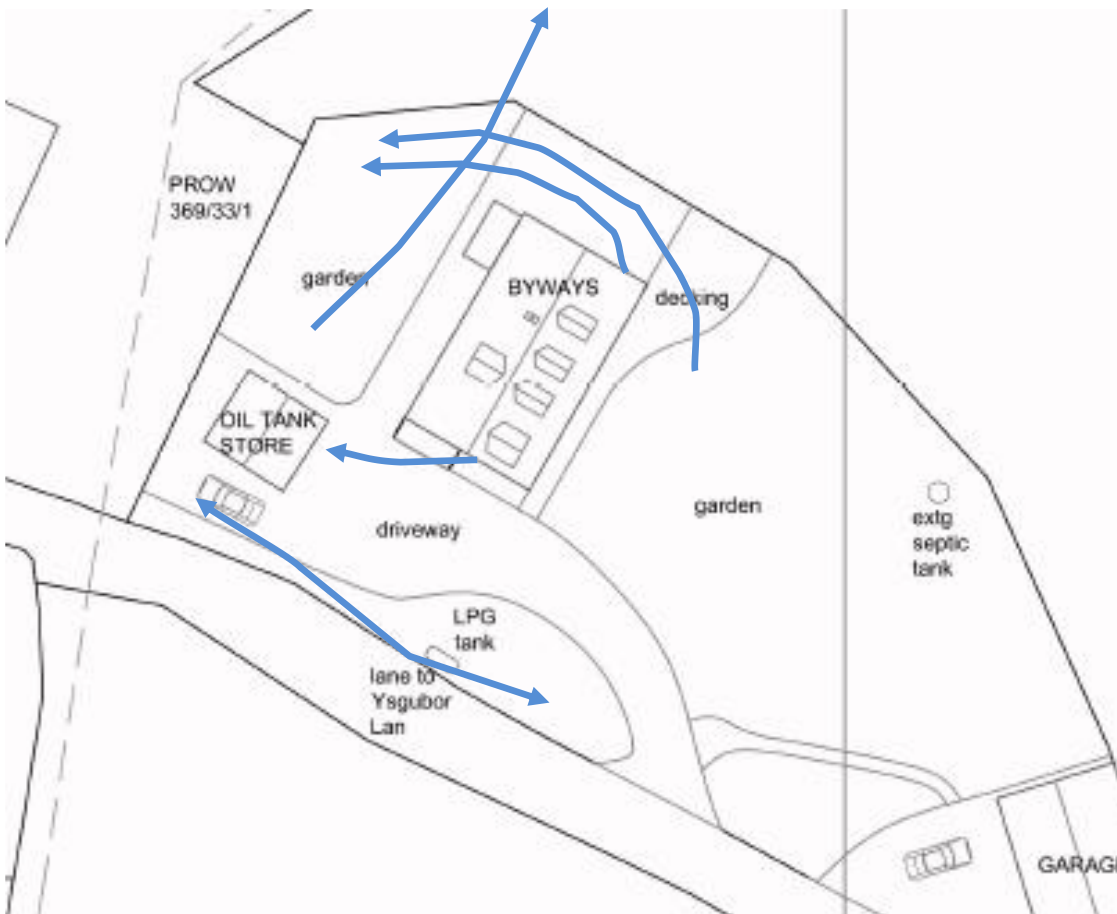


Figure 7: Showing key flight paths observed during the three roost activity surveys.



## 13 Appendix 2: Proposed bat roost locations

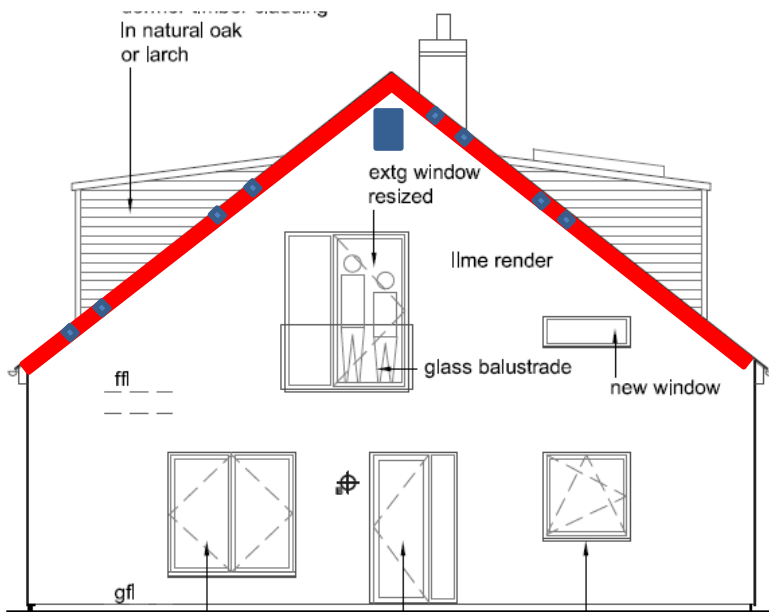


Figure 8: Northeast gable showing bargeboards and location of bat box.

Blue blocks over bargeboard indicate wooden blocks fitted under the bargeboards to create 160mm wide crevices.

**Note: Images not to scale, See proposed elevations for further detail.**

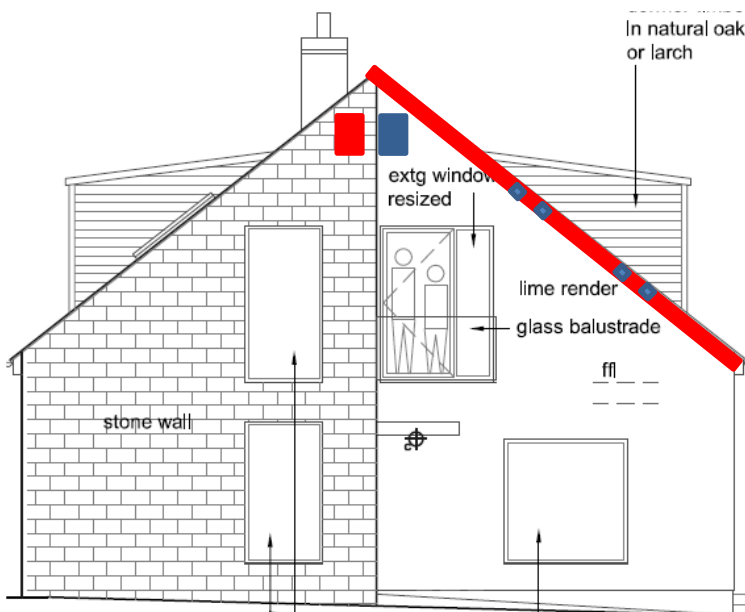


Figure 9: Southwest gable showing bargeboard and locations of bat box (red indicates compensation, blue indicates enhancement, built-in box).

Note: Blue blocks over bargeboard indicate wooden blocks fitted under the bargeboards to create 160mm wide crevices.

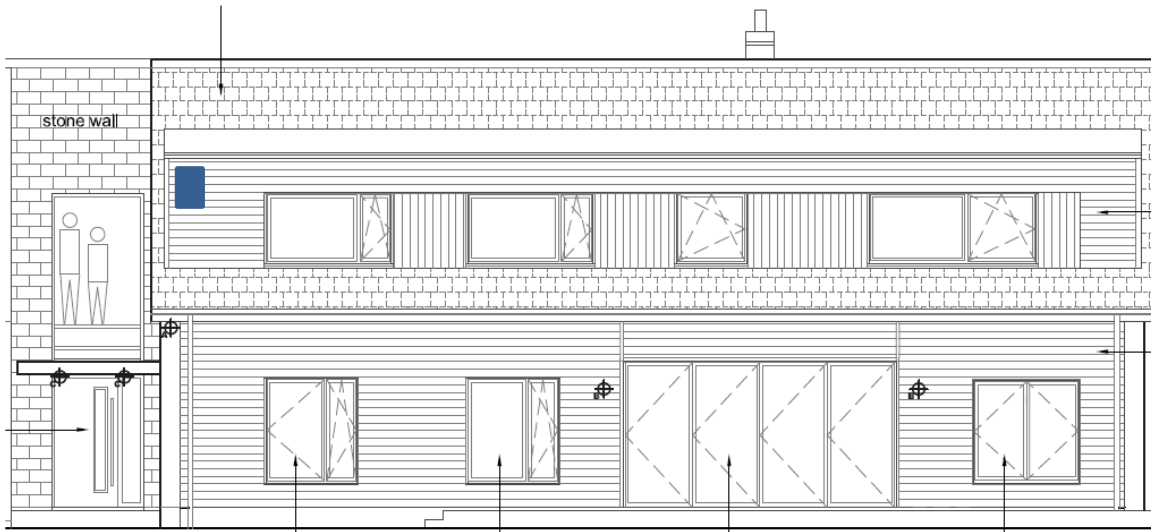


Figure 10: Southeast elevation showing location for Kent-style bat box on dormer window.