

Bat Emergence and Re-Entry Survey

Survey Site

**36 Barton Road, Market Bosworth,
Nuneaton, Leicestershire
CV13 0LQ**

Client

Riann Parker

Report Date

07/07/2026

Project

**This report is prepared to inform a
planning application for the proposal
described as an extension and
alterations to dwelling.**

This report is supplementary to the Preliminary Roost Assessment report completed by Arbtech Consulting Ltd (2026).

BERS survey methodology and legislation can be found in the Appendices of this report.

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Survey Author & Designer

Survey design and oversight were provided by Consultant Ecologist Bethany Swain BSc (Hons), (Accredited on Natalie Evans, MRSB’s Natural England Bat License No. Available On Request) at BCT Level 2 competence.

Executive Summary

This report is an addendum to and must be read in conjunction with the Preliminary Roost Assessment completed by Arbtech Consulting Limited (2026) for the same site address. This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the consultant for advice.

The surveys undertaken to date have indicated that there is a sufficiently low risk of bat roosts being present on site, and works can proceed without any further survey or licence requirements.

Table 1: Requirements arising as a result of this survey.

Requirement	Details
Wildlife Sensitive Lighting Strategy	A low impact lighting strategy will be adopted for the site during and post-development.

Report Validity

This report is valid for up to 18 months for the purposes of planning/LBC applications. For the purposes of bat licensing, the report is considered 'up to date' and suitable for licence application until the start of the following bat activity season. After those timeframes, some level of updated surveys will be required. The level of survey effort will depend on the specific circumstances of the site.

Site Context and Background

Background

A Preliminary Roost Assessment (PRA) was completed by Arbtech on 16/04/2026. The survey assessed two buildings onsite (B1 and B2). As a result of an internal and external inspection, B1 was assessed as low habitat value. Consequently 1 surveys were required to assess the presence/likely absence of roosting bats. As B2 was assessed as negligible value no further surveys were required for B2.

B1 was assessed as having low habitat value to due the lack of roosting feature and the presence of gaps at the wall under hanging tiles. There was no evidence of bats identified during the PRA.

The site itself includes a native hedgegrow and has a busy main road located to the West, residential buildings to the North and South and a area of Parkland to the East. There are 5 priority habitats located within 2 km of the site. These comprise deciduous woodland, lowland fens, ancient replanted woodland, ancient & semi-natural woodland and wood pasture and parkland. The closest priority habitat comprises deciduous woodland, located ~235 m North East of the site. The site is well connected to nearby habitats via the adjacent fields to the northeast.

There are no other statutory sites within 2 km of the site. The site does fall within the impact risk zone for Ashby Canal SSSI however, the proposed development type is not listed as possible high risk with regard to this designation.

Context

Number of buildings on site

2

Number of buildings surveyed

1

Reason for omitting buildings

B2 was assessed as having negligible value for roosting bats and therefore no further surveys were required.

Site Inspection

An updated loft inspection was undertaken by Assistant Ecologist Rabia Gull on 29/06/2026 as part of the BERS survey. The inspection identified no evidence of bat. The loft space was assessed for any material changes since the previous inspection, the internal loft space appeared to have no alterations in structure.

In comparison to the PRA (Arbtech, 16/04/2026) the roosting features identified in the PRA (hanging tiles) were still present (located on the left side of B1). The rest of the roof of B1 had been retiled and the right roof of B1 had been removed. The majority of the loft space itself appeared unchanged in comparison to the PRA, apart from the roof, where the insulation foam previously present was no longer there. Scaffolding was also present on the left side of the building, close to the roosting features.



Figure 1a: The front side of B1, with scaffolding present on the left side.



Figure 1b: The internal loft space of B1, on the left side of the building. The internal void is largely the same apart from the lack of foam insulation previously present on the roof. The roof itself was also retiled.

Proposed Works

Proposed Development

Current use of building(s)

B1 is currently used as a dwelling.
B2 is an out-building.

Proposed use of building(s)

B1: Dwelling.
B2: Out-building

Structural changes to building(s)

B1: Re-tiling and demotion of exiting conservatory and replacement of single storey rear extension.
B2: N/A

Cosmetic/repair work

B1: N/A.
B2: N/A

Type of permission required

Householder application

Proposed Plan



Figure 2: The proposed plans

Surveyors and Equipment

Surveyors

Table 2: Details of the surveyors involved in each of the surveys

Name	BERS Experience	Bat Licence	BCT Competency
Rabia Gull	1 years	N/A	Level 2
Rory McCloskey	1 years	N/A	Level 2

Equipment

Table 3: Details of the equipment used in each of the visits

Category	Equipment	Count Visit 1
Night Vision Aid	Nightfox Whisker	4
Additional illumination	Nightfox XB5 PRO	4
Additional illumination	Nightfox Arc IR Floodlight	2
Bat detector	Wildlife Acoustics Echo Meter Touch 2	2
Bat detector	Magenta Electronics Bat 4	2
Two-way radio	BAOFENG FV-880E two-way radio (or similar)	2

Surveyor Positions

Positions

Details of each surveyor position for each visit

A diagram of the positions on site can be found in Appendix 1 along with the position images.

Table 4: The surveyor positions and the surveyors associated with them on each visit. The initials LS indicate the lead surveyor for the site visit

Position	Elevation	Visit 1
B1-1	E	Rabia Gull (LS)
B1-2	W	Rory McCloskey
B1-3	E (semi-manned)	Rory McCloskey
B1-4	W (semi-manned)	Rabia Gull (LS)

Survey Visit Details and Limitations

Visit 1 29/06/2026		
Start time	Sunset	End time
21:18	21:33	11:05
Start Conditions		
Temperature(°C): 16.0		
Relative humidity (%): 65.0		
Wind (km/h): 6.4		
End Conditions		
Temperature(°C): 14.0		
Relative humidity (%): 71.0		
Wind (km/h): 4.8		
Rain		
None		
Buildings surveyed		
1		
Trees surveyed		
N/A		

Limitations

Visit 1

Works carried out prior to survey - All positions

At the time of the bat emergence and re-entry surveys, works had already commenced, including the erection of scaffolding and re-roofing works. As such, the building was no longer in the same condition as at the time of the Preliminary Roost Assessment, representing a limitation to the assessment.

The hanging tiles on the front elevation, previously identified as the only suitable bat roosting features, remained intact throughout the survey period and had not been altered. However, scaffolding had been erected directly in front of these features, partially obscuring them and potentially influencing bat access and observed emergence and re-entry behaviour. No works affecting the internal loft void or other potential internal roosting habitat were observed. Despite these limitations, the surveys recorded only low levels of bat activity within the surrounding landscape, comprising small numbers of common pipistrelle, soprano pipistrelle, brown long-eared and noctule bats. Whilst the commencement of works and presence of scaffolding reduce confidence in assessing the retained roosting features compared with an unaltered building, the low levels of bat activity recorded throughout the survey period provide confidence that the survey findings are representative of bat use at the time of survey and that significant roosting activity is unlikely to be present.

Summary Findings

Findings & Impacts

Summary of all observations and impacts

Emergences

No emergences were observed during any visit.

Roosts

No roosts were observed during any visit.

Key Foraging Areas

No foraging locations were observed during any visit.

Key Commuting Paths

Commuting activity of a Common Pipistrelle was observed from North East, turning and returning North East at the North East site boundary.

Impacts on Foraging / Commuting Bats

Increased artificial lighting from the proposed development could negatively affect commuting and foraging bats by disrupting established flight and foraging routes and reduce connectivity between roosting and foraging habitats.

Hibernation suitability

The site offers limited suitable hibernation habitat for bats, in the form of gaps under hanging tiles. No addition roosting features or access point for bats into the loft space were recorded. Therefore, no further surveys required.

Requirements & Enhancements

Requirements & Enhancements

Requirements

Bat Licence

A bat licence is not required for the proposed works.

Mitigation

The surveys undertaken to date have indicated that there is a sufficiently low risk of bat roosts being present on site, and works can proceed without any further survey or licence requirements. In the unlikely event bats are found, work must stop, and a suitably qualified ecologist will be contacted for further advice.

Wildlife Sensitive Lighting Strategy

Foraging and commuting bats could be impacted by additional lighting on site which can affect resources for the local population. Only common and widespread species were identified on site, therefore no impacts at population level are anticipated. Impacts are at site level only.

A low impact lighting strategy will be adopted for the site during and post-development, and this should be designed in accordance with Guidance Note GN08/23 Bats and Artificial Lighting at Night (Institution of Lighting Professionals, 2023). Parameters can be found on the Bat Conservation Trust website: <https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released>

Enhancements

The creation of additional habitat for bats is recommended in line with the local authorities' duty to request enhancements under the NPPF (2024).

Planting - Wildflowers

Planting of species rich night-scented wildflower is recommended to increase prey availability to enhance the site for foraging and commuting bats. Species include evening primrose (*Oenothera biennis*), common honeysuckle (*Lonicera periclymenum*), red campion (*Silene dioica*), Common White Jasmine (*Jasminum officinale*), and night-scented stock (*Matthiola longipetala*).

Requirements & Enhancements

Enhancements Continued

Bat boxes - roof alterations

The installation of two bat boxes at the site will provide additional roosting habitat for bats. The bat boxes will be integrated within the roof. Bat boxes should be positioned 3-5m above ground level (at the eaves of buildings), facing in a south or south-westerly direction, with a clear flight path to and from the entrance, away from and unlit by artificial light, and not above any windows. The bat boxes will be a specification suitable for crevice dwelling species.

Version Control and Copyright

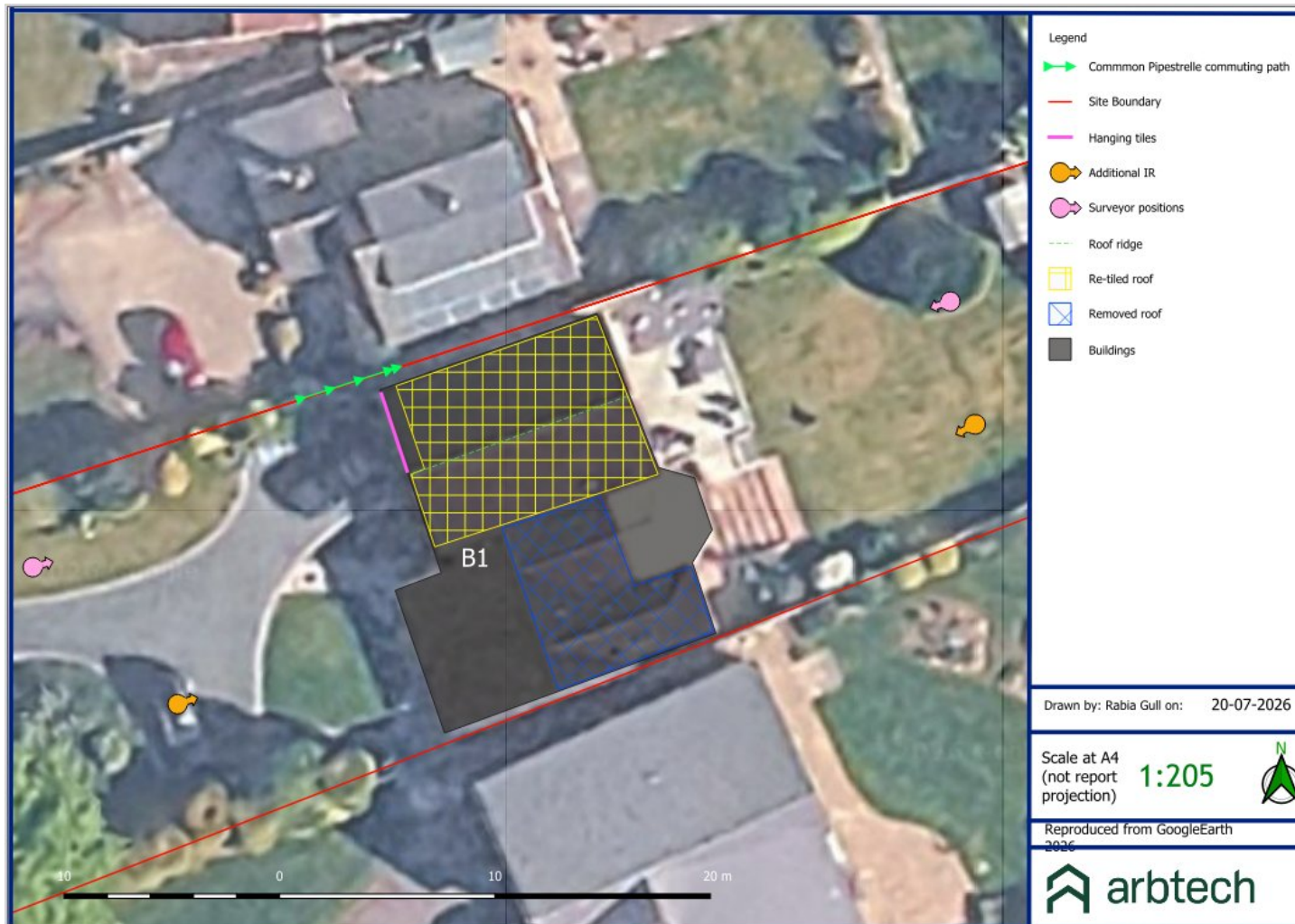
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Version Control

Status	Issue	Name	Date
Draft	0.1	Rabia Gull, Bsc, Msc, Assistant Ecologist	07/07/2026
Review	0.2	Harley Stone, BSc (Hons), Senior Ecologist	19/07/2026
Draft	0.3	Rabia Gull, Bsc, Msc, Assistant Ecologist	20/07/2026
Review	0.4	Harley Stone, BSc (Hons), Senior Ecologist	20/07/2026
Final	1.0	Rabia Gull, Bsc, Msc, Assistant Ecologist	20/07/2026

Appendix 1: BERS plan



Plan 1: A site map including the observed commuting path of a Common Pipistrelle during V1

Appendix 2: Additional Site Inspection Images



The removed roof of B1 (removed on the right/ Eastern side).



The removed roof of B1 (removed on the right/ Eastern side).

Appendix 3: Surveyor Photos



V1 B1-1 surveyor photo



V1 B1-2 surveyor photo



V1 B1-3 surveyor photo



V1 B1-1 darkest point image



V1 B1-2 darkest point image



V1 B1-3 darkest point image



V1 B1-4 surveyor photo



V1 B1-4 darkest point image

Appendix 4: Summary of Call Data

Species	Visit 1	Total
Common noctule	31	31
Common pipistrelle	20	20
Brown long-eared bat	18	18
Soprano pipistrelle	3	3

Appendix 5: Raw Survey Data Log

Pos - Position **Spp** - Species **Act** - Activity **Emer** - Emergence **Fora** - Foraging **Comm** - Commuting **PSR** - Post-survey result **Re-ent** - Re-entry **CPIP** - Common pipistrelle **SPIP** - Soprano pipistrelle **PIPSP** - Pipistrelle sp. **BLE** - Brown long-eared bat **PLECSP** - Plecotus sp. **NOC** - Common noctule **DAUB** - Daubenton's bat **NAT** - Natterer's bat **WHI** - Whiskered bat **WHI/BRAN** - Whiskered/Brandt's bat **MYOSP** - Myotis sp. **SERO** - Serotine **NYCSP** - Nyctalus sp. **LEI** - Leisler's noctule **NPIP** - Nathusius pipistrelle **LHO** - Lesser horseshoe bat **BARB** - Barbastelle **GHO** - Greater horseshoe bat **GLE** - Grey long-eared bat **ALCA** - Alcathoe **BECK** - Bechstein's bat **GME** - Greater mouse-eared bat

Visit 1

Time	Pos	Spp	Act	Notes	PSR
21:56	B1-1	CPIP	Call		
21:56	B1-2	SPIP	Call	hns faint	
21:56	B1-3	SPIP	Call		PSR
21:58	B1-1	CPIP	Call		
22:01	B1-1	NOC	Call		
22:02	B1-2	NOC	Call	hns faint	
22:02	B1-3	NOC	Call		PSR
22:08	B1-2	CPIP	Call	hns faint	
22:08	B1-3	CPIP	Call		PSR
22:14	B1-1	NOC	Call	faint	
22:14	B1-2	NOC	Call	hns faint	
22:14	B1-2	CPIP	Call	hns faint	
22:14	B1-3	NOC	Call		PSR
22:14	B1-3	CPIP	Call		PSR
22:17	B1-1	SPIP	Call	faint	
22:25	B1-2	NOC	Call		
22:25	B1-3	NOC	Call		PSR
22:27	B1-1	BLE	Call	faint	
22:30	B1-1	NOC	Call	faint	
22:32	B1-1	NOC	Call	faint	
22:32	B1-1	CPIP	Call	Derived from commuting observations	
22:32	B1-2	NOC	Call		
22:32	B1-2	CPIP	Call	hns faint	

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:32	B1-3	CPIP	Call		PSR
22:32	B1-1	CPIP	Comm	North East, turning and returning back North East at the North East site boundary	
22:44	B1-1	NOC	Call	faint	
22:44	B1-1	BLE	Call		
22:46	B1-2	CPIP	Call	hns faint	
22:46	B1-3	CPIP	Call		PSR
22:47	B1-2	BLE	Call	hns	
22:47	B1-3	BLE	Call		PSR
22:48	B1-1	NOC	Call		
22:49	B1-1	BLE	Call		
22:50	B1-2	NOC	Call		
22:50	B1-2	NOC	Call		
22:50	B1-3	NOC	Call		PSR
22:54	B1-2	CPIP	Call		
22:54	B1-3	CPIP	Call		PSR
22:55	B1-2	BLE	Call		
22:55	B1-3	BLE	Call		PSR
22:56	B1-1	BLE	Call		
22:56	B1-1	BLE	Call		
22:57	B1-2	CPIP	Call		
22:57	B1-2	BLE	Call		
22:57	B1-3	CPIP	Call		PSR

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:57	B1-3	BLE	Call		PSR
22:58	B1-2	BLE	Call		
22:58	B1-2	BLE	Call		
22:58	B1-3	BLE	Call		PSR
22:58	B1-3	BLE	Call		PSR
23:00	B1-1	BLE	Call		
23:00	B1-1	NOC	Call		
23:01	B1-2	NOC	Call		
23:01	B1-3	NOC	Call		PSR
23:03	B1-2	CPIP	Call		
23:03	B1-3	CPIP	Call		PSR
23:04	B1-1	NOC	Call		
23:04	B1-2	NOC	Call		
23:04	B1-3	NOC	Call		PSR
23:06	B1-1	NOC	Call		
23:08	B1-1	NOC	Call		
23:08	B1-1	NOC	Call		
23:08	B1-2	BLE	Call		
23:08	B1-2	NOC	Call		
23:08	B1-2	CPIP	Call		
23:08	B1-2	NOC	Call		
23:08	B1-3	CPIP	Call		PSR
23:08	B1-3	NOC	Call		PSR

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
23:08	B1-3	BLE	Call		PSR
23:09	B1-1	NOC	Call		
23:12	B1-2	NOC	Call		
23:12	B1-3	NOC	Call		PSR
23:21	B1-1	CPIP	Call		

Appendix 6: General Methodology

BAT EMERGENCE AND RE-ENTRY SURVEY METHODOLOGY — GENERAL

1. Survey Aims and Approach

Dusk bat emergence surveys (and, where justified, dawn re-entry surveys) were undertaken to determine the presence or likely absence of roosting bats and, where present, to characterise roosts by species, numbers, access points, roost type and how bats use the site. Survey design follows an iterative approach: results and audit data are reviewed after each visit so that subsequent survey effort, positioning, equipment deployment and objectives can be refined as needed (BCT 7.2.17; 10.1.1).

2. Guidance and Standards

All surveys were designed and delivered with reference to Bat Surveys for Professional Ecologists — Good Practice Guidelines (4th ed.) (Collins, 2023), the CIEEM Guidelines for Ecological Report Writing (2nd ed.) (CIEEM, 2017a), and other relevant guidance including Natural England standing advice for bats (updated April 2025) and BS 42020:2013. Where departures from published good practice were made, the report identifies what changed, why, how survey robustness was maintained, and the competence of the ecologist(s) making that judgement (BCT 1.1.4–1.1.5; 2.2.32–2.2.33).

3. Competence and Roles

Survey design and oversight were provided by Consultant Ecologist Bethany Swain BSc (Hons), (Accredited on Natalie Evans, MRSB's Natural England Bat License No. Available On Request) at BCT Level 2 competence. On-site survey work was led by Rabia Gull, BSc, MSc at BCT Level 2 competence, supported by 1 additional Bat Surveyor(s) and/or Assistant(s). Bat Surveyors (minimum BCT Level 1, trained to internal standard) worked under the supervision of the Project Surveyor and were responsible for data collection at their manned positions, including real-time species identification and operating IR camera/acoustic equipment. Training records and competency sign-offs are maintained in line with CIEEM Code of Professional Conduct. Full surveyor details are provided in Table 2.

4. Survey Timing, Effort and Seasonal Windows

Survey effort was set in line with BCT Tables 7.1 and 7.2 and reviewed as results emerged. Dusk emergence surveys commenced with surveyors and equipment in place 15 minutes before sunset and continued for 1.5–2 hours after sunset (BCT 7.2.31). Survey visits were spaced a minimum of three weeks apart and timed within the core May–August survey window wherever feasible. Where September surveys were required, the report details the justification, how robustness was maintained, and any residual uncertainty.

Survey dates, start/end times, and sunset/sunrise times are provided in the survey visit details section of the report.

5. Weather Conditions

Surveys were undertaken only when conditions were likely to support typical bat emergence and flight behaviour. Conditions were assessed using forecasts and confirmed on arrival. Minimum thresholds: temperature >7°C at survey start; wind ≤ Beaufort Scale 3 (~5 m/s); no persistent heavy rain. Where suboptimal but permissible conditions occurred (e.g. intermittent light drizzle), these are recorded and interpretation reflects this. Weather data recorded during each survey are provided in the survey visit details section of the report.

6. Survey Area and Position Design

The survey area comprised 1 building, selected on the basis of the PRA findings and/or tree assessment results. Justification for the extent of survey coverage is provided in the Site Context and Background section.

The arrangement of surveyors and equipment was informed by the Preliminary Roost Assessment (structures) and/or tree assessment (PRFs/GLTA) so that identified roosting features and likely access points were the focus of coverage, while recognising that bats may emerge from unexpected locations (BCT 7.2.12). Where NVAs were deployed, a still image or screenshot was captured from the darkest point of the survey from each NVA to demonstrate field of view and adequacy of illumination; these are provided in 3 (BCT 7.2.10). Surveyor and equipment positions for each survey visit are shown on Appendix 1.

7. Equipment Standards

All electronic survey equipment (detectors, recorders and NVAs) was tested prior to deployment (function check, storage capacity, battery health, time synchronisation) and calibrated/tested in line with manufacturer guidance, typically at least annually, with evidence retained and available on request (BCT 2.5.14). Microphone sensitivity was verified prior to the survey season, as sensitivity can decline over time (BCT 2.5.16). Equipment was selected as suitable for the target species and site conditions (BCT 2.5.13; 2.5.17). Detector settings and deployment metadata were documented consistently, including gain/sensitivity, trigger parameters, recording format, sample rate, firmware/app version, time settings and any filters applied (BCT 2.5.15; 2.5.20). Equipment details and settings are provided in Table 3.

8. Data Capture and Acoustic Analysis

All results were recorded using a standardised digital survey form, including surveyor positions, start/end times, weather at intervals, equipment identifiers, detector settings, observed emergences/returns, bat passes, flight direction, behaviour notes and confidence/uncertainty notes (BCT 7.2.19). Raw audio/video recordings and metadata were retained as an auditable record. Negative survey results were also recorded (BCT 2.5.19).

A bat pass was defined as a sequence of two or more echolocation pulses produced by an individual bat, with a new pass recorded when a gap of one second or more occurred between successive calls. Where sustained activity was recorded (e.g. circling bats), this was noted as sustained activity rather than counted as individual passes.

At manned positions, species identification was carried out in real-time by the ecologist using a heterodyne detector for live listening and an Echo Meter Touch (built-in MEMS microphone) for full-spectrum recording. All recordings were retained as an auditable record. Post-survey acoustic review was undertaken only where specific calls could not be confidently identified on site; these were reviewed using Wildlife Acoustics Kaleidoscope Pro with reference to Russ (2012)

British Bat Calls: A Guide to Species Identification.

Where semi-manned positions were deployed (Titley Chorus with ultrasonic microphone), recordings were processed through Titley Scientific Anabat Insight (BatClassify UK plug-in) to provide automated species identification. Auto-ID outputs were subject to targeted manual verification by an experienced ecologist using Kaleidoscope Pro. Manual verification was applied to: uncertain or low-confidence classifications; any classifications of conservation-significant, locally uncommon or Annex II species regardless of confidence score (BCT 10.2.19); and any records detected at unusual times. Manual verification involved visual inspection of spectrograms and examination of call parameters including peak frequency (kHz), start and end frequency (kHz), call duration (ms), inter-pulse interval (ms), bandwidth (kHz), and call shape/structure (e.g. FM, FM-QCF, QCF). Where calls could not be confidently assigned to species level (e.g. *Myotis* species group), they were recorded at the most reliable taxonomic level.

It is acknowledged that automated classification software is not infallible; false positives and false negatives may occur. Different species can produce similar calls, and recording quality, environmental conditions and bat behaviour can affect call characteristics. Some species groups (e.g. *Myotis* spp., *Nyctalus/Eptesicus*) cannot be reliably separated by echolocation alone (Russ, 2012). Where auto-ID was used, the system and version, validation steps, thresholds and manual verification criteria are documented in Appendix 5 (BCT 10.2.21).

Acoustic data were reviewed promptly after each survey to inform subsequent survey design (BCT 2.2.16; 10.1.1).

9. Health and Safety

A site-specific risk assessment was prepared addressing both site and generic survey hazards (night working, slips/trips, lone working, antisocial behaviour risk). The risk assessment was reviewed on arrival at each visit, and new hazards identified on site were recorded for subsequent visits (BCT 2.7.3).

10. Report Quality Assurance

This report has been written by, or reviewed by, a senior member of staff to confirm technical adequacy, clarity and that recommendations are justified (BCT 11.4.1). Survey effort has been checked as part of project quality assurance (BCT 7.2.13).

11. Limitations and Survey Validity

Survey data in this report were collected during the 2026 survey season. In accordance with CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys, survey data are generally considered valid for up to 12 months / state period from the date of the last survey visit. Where this report is relied upon beyond that period, an update assessment may be required.

- Weather conditions (suboptimal conditions, aborted/rescheduled surveys)
- Access constraints (areas not surveyed and reasons)
- Timing constraints (surveys outside core season, justification)

- Equipment limitations (NVA range/coverage gaps, IR illumination constraints, detector sensitivity to quiet species such as Plecotus)
- Health and safety constraints affecting survey design
- Any other factors, and how these were addressed or their implications for survey robustness

References

References relevant to this methodology.

- BCT (2023, amended 27.03.2024) Bat Surveys for Professional Ecologists — Good Practice Guidelines (4th ed.). Bat Conservation Trust, London.
- BCT / Fawcett-Williams, J. (2021) Thermal Imaging: Bat Survey Guidelines. Bat Conservation Trust, London.
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- CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM, Winchester.
- BSI (2013) BS 42020:2013 Biodiversity — Code of practice for planning and development. British Standards Institution, London.
- Natural England (2025) Bats: advice for making planning decisions. Updated April 2025.
- Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing, Exeter.

Appendix 7: Survey Methodology

BAT EMERGENCE SURVEY METHODOLOGY — HYBRID NVA/ECOLOGIST SURVEY

1. Survey Method

This survey used a hybrid approach combining manned positions (ecologist with NVA, live detector and recording) and semi-manned automatic recording positions (NVA with dedicated static audio detector). Semi-manned positions were deployed to maintain coverage of roosting features while reducing the number of human positions required, consistent with BCT guidance that NVAs can reduce the number of surveyors where appropriately deployed with a detector soundtrack and evidence of efficacy (BCT 7.2.8; 7.2.11).

2. Position Design

The arrangement of manned and semi-manned positions was determined from the PRA and/or tree PRF assessment, with coverage designed so that all elevations and identified roosting features were monitored (BCT 7.2.12). Survey design and oversight were provided by Consultant Ecologist Bethany Swain BSc (Hons), (Accredited on Natalie Evans, MRSB's Natural England Bat License No. Available On Request) at BCT Level 2 competence. at BCT Level 3 competence (BCT 7.2.6). Manned positions were staffed with either Project Surveyors or Bat Surveyors, who were responsible for data collection, including real-time species identification and recording all bat activity, including peripheral activity across the wider site (BCT 7.2.13). Semi-manned positions were monitored by either the Project Surveyor or Bat Surveyors, which were allocated by the Project Surveyor. Where required, additional assistants were present to monitor semi-manned positions to provide additional equipment security. Surveyor and equipment positions are shown on Appendix 1.

3. Equipment

Manned positions: IR camera (Nightfox Whisker) with tripod; true IR illumination source (Nightfox XB5 Pro 850 nm); tablet for digital data capture; full-spectrum detector (Echo Meter Touch, built-in MEMS microphone) with recording enabled, supplemented by heterodyne detector for real-time species identification; radio communication; red-light head torch; weather meter/anemometer.

Semi-manned positions: IR camera with true IR illumination source; full-spectrum static bat detector/recorder (Titley Chorus with ultrasonic microphone, unique identifier) deployed on a tripod at approximately 1.5–2 m above ground level, with the microphone oriented horizontally and directed towards the building features under observation — height and orientation were adjusted on site as necessary to maximise acoustic coverage of identified roosting features; tripod/clamp system for stable alignment and security.

Staffing and equipment deployment were designed to ensure survey effort was not diluted across the site, with sufficient coverage of all relevant elevations and features (BCT 7.2.15).

All equipment was tested and calibrated in line with manufacturer guidance, with evidence retained and available on request (BCT 2.5.14). Detector settings

(gain/sensitivity, trigger parameters, recording format, sample rate, firmware version, time settings) were documented (BCT 2.5.15; 2.5.20). Equipment details and settings are provided in Table 3, along with any deviations from this kit list.

4. Survey Operation

All equipment was deployed and operational before the 15-minute pre-sunset survey start. Each NVA was checked for focus, field of view and adequacy of true IR illumination (BCT 7.2.10). NVAs and audio recorders were turned on before the survey window and remained running until after completion (BCT 7.2.11). During the survey, each surveyor monitored their allocated NVAs and carried out operational checks (recording status, IR illumination timing, lamp alignment). Surveyors maintained constant radio contact. A still image was captured from the darkest point of the survey from each NVA to demonstrate field of view and illumination adequacy; these are provided in Appendix 3 (BCT 7.2.10).

5. Post-Survey Review

NVA footage was reviewed promptly (typically the following day) while the survey remained fresh in surveyors' minds (BCT 7.2.16). Acoustic files were processed promptly to inform subsequent survey design (BCT 2.2.16; 10.1.1). Results from each visit were used to refine positioning, equipment deployment and objectives for subsequent visits where required (BCT 7.2.17). Where overlap between independent observer and NVA detections was noted, this was recorded to support internal quality assurance (BCT 7.2.14). Where bats were observed emerging, survey interpretation recognised that the roosting location may differ from the emergence point, and follow-up survey design was adjusted accordingly (BCT 7.2.17).

6. Justification for Method

This hybrid approach was selected as appropriate for the site based on site complexity and safe deployment conditions for equipment. The method maintains full auditable NVA and acoustic coverage of all identified roosting features while providing direct ecologist observation at key positions.

7. Limitations

All limitations are listed, along with their impact level, in the Limitations section of the main report.