# A83 Rest and Be Thankful

## LTS EIAR VOLUME 4, APPENDIX 11.11 - BAT REPORT

Transport Scotland

A83AAB-AWJ-EAC-LTS_GEN-RP-LE-000267

# A11-11.Bat Report

## A11-11.1. Introduction

### Terms of Reference

A11-11.1.1. AtkinsRéalis WSP Joint Venture (AWJV) were commissioned by Transport Scotland as part of the A83 Rest and Be Thankful (hereafter referred to as the Proposed Scheme), to prepare a bat baseline report.

A11-11.1.2. Volume 2, Chapter 4: The Proposed Scheme, provides details of the construction works, the Receptor Sites and Natural Capital (NC) and Biodiversity Net Gain (BNG) enhancement sites. The findings for these enhancement sites are considered in Appendix 11.16: Enhancement Site Survey Report. They are not discussed within this report. The Proposed Scheme, excluding the NC and BNG enhancement sites, will be referred to as the Proposed Scheme (excl. NC & BNG) hereafter.

### Purpose of Report

A11-11.1.3. This report is intended to provide baseline information regarding bats to inform the Environmental Impact Assessment (EIA) Report for the Proposed Scheme.

A11-11.1.4. This report presents ecological information obtained during the following:

- a review of Jacobs AECOM Joint Venture (2022): Access to Argyll and Bute (A83) Medium Term Solution Bat Report
- a desk-study involving review of freely available online data, undertaken in November 2023
- preliminary bat roost assessments undertaken in March - April 2023
- automated static bat detector surveys were undertaken between May to September 2023
- dusk emergence/dawn re-entry bat roost surveys undertaken between 2023 and 2024

- walkover surveys in February 2024 were undertaken to identify suitable bat structures, upslope (north-east) of the A83 within the Proposed Scheme Boundary and were completed by a subcontractor. Surveys included preliminary bat roost assessments in February 2024 and rope access surveys in February 2024 and May 2024 and
- hibernation surveys (including automated static detectors) undertaken between December 2023 and March 2024.

## A11-11.2. Legislation

A11-11.2.1. See Appendix 11.2: Biodiversity Legislation, Policy and Guidance for species legislation.

## A11-11.3. Methodology

### Desk Study

A11-11.3.1. The geographical area for obtaining ecological data through desk studies has been determined using the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Biodiversity Data, CIEEM Guidelines for Preliminary Ecological Appraisal and professional judgement. Baseline data was gathered through a data request and using online resources. In January 2023 a request for protected species records was submitted to Argyll Biological Records Centre (ABReC) for a 2km buffer of the Proposed Scheme (excl. NC & BNG). However, due to staff illness, ABReC were not able to provide data. ABReC did confirm their records could be downloaded from National Biodiversity Network Atlas (NBN) Atlas and used in any reports relating to the search (see Volume 2, Chapter 11: Biodiversity for details of communication with ABReC). Only records within the last 10 years were considered.

### Data Review

A11-11.3.2. A desk-based review of the 2021 and 2022 data was undertaken for bats and was of direct relevance to the bat survey area. A review of the following ecological reports was undertaken:

- Jacobs AECOM Joint Venture (2021): Protected and Notable Mammals Report and
- Jacobs AECOM Joint Venture (2022): Medium Term Solution: Bat Survey Report.

### Field Survey

A11-11.3.3. The bat survey area includes all land within 100m of the Proposed Scheme (excluding NC & BNG). A 100m buffer was considered proportionate to account for design iterations/wider environmental records focused on suitable habitat for bats. The bat survey area is illustrated in Volume 3, Figure 11.11a: Bat Survey Area and Survey Access. A number of surveys that were completed during the preferred optioneering phase and while the design was being developed for the Proposed Scheme, are outwith the 100m survey area. Where evidence of roosting bats were recorded these results are provided to offer local context of species assemblages and bat roosts.

A11-11.3.4. All surveys were carried out in accordance with industry standard recommendations, Bat Conservation Trust (BCT) Good Practice Guidelines 2023 and the previous BCT Good Practice Guidelines 2016.

A11-11.3.5. As described in the guidance surveys were completed by suitability qualified and/or NatureScot licenced ecologist where applicable. Any deviation from the guidance is fully justified within Annex 11.11.A.

### Preliminary Bat Roost Assessment (PBRA)

A11-11.3.6. The survey area was assessed for its suitability to support roosting, foraging and commuting bats. Buildings, structures and trees within the survey area were inspected to identify Potential Roost Features (PRF) externally from ground-level, using binoculars and a torch where necessary by competent surveyors. Endoscope surveys were completed by a NatureScot bat licenced surveyor.

A11-11.3.7. Structures and buildings were inspected where safe to do so, it is detailed in the limitations where it was not deemed safe. A brief description of the building or structure's composition and condition as well as the surrounding

habitat suitability for foraging bats was noted. PRFs searched for included cracks in walls, slipped roof tiles, and any other possible ingress features. If found, these features were inspected for signs of evidence of bat presence including droppings, staining, feeding signs, and sounds of presence. Ground Level Tree Assessment's (GLTA's) were carried out, detailing the tree's species, height, Diameter at Breast Height (DBH), condition and surrounding habitat suitability. PRF's searched for included woodpecker holes, rot holes, transverse snaps and hazard beams. Detailed in Annex 11.11.B.

A11-11.3.8. During this initial assessment, the buildings, structures, and trees were categorised in line with Table A11-11.1 below (adapted from Table 4.1, Chapter 4 of BCT Good Practice Guidelines 2016).

A11-11.3.9. All features identified within the bat survey area that had suitability to support roosting bats were also assessed for their suitability to support hibernating bats. Hibernation suitability was assessed by the likelihood of the structure to have traditional hibernation opportunities which are considered to be caves, tunnels, mines, cellars, ice houses, lime kilns etc as they provide cool, stable and humid conditions. However, increasing evidence (Middleton, N. (2019) Assessing sites for hibernation potential. A practical approach, including a proposed method and supporting notes. Bat Ability) suggests that some species, notably pipistrelle species are frequently found in more exposed or thermally unstable locations. Therefore, consideration was also made to small numbers of bats that may utilise non-traditional hibernation habitats, for example residential buildings.

A11-11.3.10. The categorisation of hibernation roosts also followed the structure outlined within Table A11-11.1 in line with the updated BCT Good Practice Guidelines 2023.

**Table A11-11.1 - Roost suitability categorisation**

| Suitability | Roost Suitability Criteria |
|---|---|
| Confirmed | A building, structure or tree with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey. |
| High | A building, structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat (including connectivity to suitable foraging ground). These buildings, structures, or trees have the potential to support high conservation status roosts e.g. maternity, nursery or classic cool/stable hibernation site.<br>Buildings/structures with ideal high roost potential include complex attic and roof space features, deep cracks in stonework, etc. Trees with ideal features for roosting bats include features such as deep, dry features. These could include well developed hazard beams, splits or crevices. Rock exposures with high suitability would offer multiple deep and complex crevices/cavities. |
| Moderate | A building, structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat (including connectivity to suitable foraging ground) but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).<br>Typically, buildings/structures/trees with such roost suitability support either single bats or small non-breeding groups. |
| Low | A building, structure or tree with one or more potential roost sites that could be used by individual bats opportunistically at any time of |

| Suitability | Roost Suitability Criteria |
|---|---|
| | year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).<br>Such features in buildings/structures include small, open cavities and in trees include shallow knot-holes that lack a higher grade of suitability either due to their exposed nature and/or shallow depth. |
| Negligible | No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion. |
| None | No habitat features on-site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels). |

### Tree Surveys

A11-11.3.11. Following PBRA surveys, an inspection of identified suitable roosting features in trees were undertaken (where possible to do so). The character, profile, and suitability of PRFs were noted, alongside the presence/absence of bats or the presence of evidence of bat use.

A11-11.3.12. An inspection of the following trees was undertaken;

- BT3, BT4, BT5, BT6, BT7 and BT8 occurred on 12 July 2023.
- BT5 was subject to a second endoscope check on the 15 August 2023.
- BT4 had an inspection in January 2024.

A11-11.3.13. PRFs within trees which were able to be fully inspected by suitably qualified/licenced ecologist were subject to additional endoscope, torching and at-height camera (PoleKam) surveys where possible. The use of the

endoscope and torch was undertaken from ground level. Dusk emergence and dawn re-entry surveys were undertaken on BT3 and BT4 (methodology described below).

### Rope Access Surveys

A11-11.3.14. A roped access survey of the BS24 (a former quarry site); Ordnance Survey British National Grid NN 24103 06486 was completed during the bat hibernation period, on 22 February 2024. An inspection of 'the Cave Complex' was completed on 23 May 2024 (BC1 and BC2 are part of 'the Cave Complex' and are referenced in this report).

A11-11.3.15. PRF's were initially identified from ground level (aided by binoculars) and locations for anchor points and abseils noted. During rope access inspections all PRFs were surveyed (where possible) for bats and evidence of use by bats (e.g. droppings) using torchlight and an endoscope where necessary. The inspection results for both BS24 and 'the Cave Complex' are shown in Annex 11.11.B.

A11-11.3.16. Results from both inspections are also illustrated in Volume 3, Figure 11.11b: Bat Dusk Emergence/Dawn Re-entry and Inspection Survey Results.

### Bat Roost Activity Surveys

#### Dusk Emergence and Pre-dawn Re-entry Surveys

A11-11.3.17. Dusk emergence and pre-dawn re-entry surveys were undertaken on buildings, structures and trees identified as having suitability to support roosting bats. The surveys were undertaken between May – September 2023 and May – August 2024. The location of buildings, structures and trees subject to survey are provided in Volume 3, Figure 11.11a: Bat Survey Area and Survey Access.

A11-11.3.18. Dusk emergence surveys commenced approximately 15 minutes prior to sunset and ended at least 1.5 hours after sunset. Pre-dawn re-entry surveys started 90 minutes prior to sunrise and concluded 15 minutes after. Full

details regarding the dates and timings of the bat roost surveys, along with associated weather conditions are provided in Annex 11.11.C.

A11-11.3.19. The dusk emergence and pre-dawn re-entry surveys involved monitoring the identified PRFs visually to identify any bat activity. Bat detectors were used to listen to and record the echolocation calls of any bats observed. Where a bat was observed emerging from or re-entering into a building, structure or tree, the timing, exact location, and species of bat was noted. Surveyors used Elekon Batlogger M ('Batlogger') detectors and Batlogger M2 detectors to detect and record bats and their calls. Infra-red (IR) camera recording equipment was used as a survey aid following Bat Conservation Trust Interim Guidance on night vision aids and BCT Good Practice Guidelines 2023. Where possible, a Canon XA30 infrared camera with infra-red lights were set-up to record throughout the survey. The infra-red equipment enhanced visibility, so even in complete darkness bats can be seen exiting or returning to the PRF. Following completion of the survey, IR footage recorded was reviewed and analysed to ensure that any bats emerging or returning from a PRF were recorded that may have been missed during the survey due to poor visibility. The footage was then compared to acoustic calls from the Batlogger to enable species identification.

### Data Analysis

A11-11.3.20. The recordings of bat echolocation calls collected during the surveys were analysed using Wildlife Acoustic's Kaleidoscope© sound analysis software. Analysis of recorded files was used in conjunction with notes made by surveyors on proformas to identify/confirm species of bats (where possible) associated with the trees/buildings/structures and their activity.

A11-11.3.21. As part of an internal Quality Assurance (QA) procedure, analysed bat calls were reviewed by a second ecologist (of at least "Accomplished" per the CIEEM competency framework) with similar or greater experience of bat call identification and recognised as having reached an appropriate standard of ability. Under the QA procedure, all calls identified as being associated with an emergence/re-entry were subject to a second review. Where possible, bat

calls were identified to species level. However, species of the genus *Myotis* were not identified to species level as their calls are similar in structure with overlap between echolocation calls within the genus (Russ, J. (2012). British Bat Calls: A Guide to Species Identification. Exeter: Pelagic Publishing, 47) For *Pipistrellus* species, the following criteria based on measurements of peak frequency are used to classify calls:

- Common pipistrelle *Pipistrellus pipistrellus* ≥ 42 and <49kHz.
- Soprano pipistrelle *Pipistrellus pygmaeus* ≥ 51kHz.
- Common/soprano pipistrelle ≥49 and <51kHz. and
- Common/Nathusius' *Pipistrellus nathusii* pipistrelle ≥39 and <42kHz.

A11-11.3.22. In addition, the following categories are used for calls which cannot be identified with confidence due to the overlap in call characteristics between species or species groups:

- *Pipistrellus* species (either common or soprano pipistrelle, or common or Nathusius' pipistrelle).
- *Myotis* species. and
- *Nyctalus* species (either Leisler's bat *Nyctalus leisleri* or noctule *Nyctalus noctula*).

### Automated Static Bat Detector Survey

A11-11.3.23. Automated static bat detectors were deployed at seven locations within the Proposed Scheme with the purpose of recording bat activity between May and September 2023, to obtain species assemblage and an indication of important commuting and foraging areas for bats. Detectors were deployed in locations considered to be optimal for foraging and commuting bats based on the habitats present such as waterbodies and woodland edges. The locations of detectors and habitats they were deployed in is shown in Table A11-11.2 (full details in Annex 11.11.D) and illustrated in Volume 3, Figure 11.11c: Automated Static Detector Results (May - September 2023).

A11-11.3.24. The detector at Location 3 was moved from its original deployment locations used at Deployment 1 and 2 to a new location at Deployment 3 (01 September 2023 - 06 September 2023) to better capture bat activity along the roadside of the A83.

**Table A11-11.2 - Roost suitability categorisation**

| Structure reference | Grid Reference | Habitat Type |
|---|---|---|
| BC1 'The Cave Complex' | NN 23559 07311 | Grassland; detector placed with a cave like structure in a rocky outcrop |
| BC2 'The Cave Complex' | NN 23540 07342 | Grassland; detector placed within a cave like structure in a rocky outcrop |
| Location 1 | NN 22970 07520 | Grassland adjacent Loch Restil |
| Location 2 | NN 23440 07300 | Grassland with rocky outcrops |
| Location 3 | NN 24140 06090 (Deployment 1 and 2)<br>NN 24230 06030 (Deployment 3) | Mixed plantation woodland and scrub |
| Location 4 | NN 24280 06070 | Mixed plantation woodland and scrub adjacent water course |
| Location 5 | NN 24308 06093 | Mixed plantation woodland and scrub adjacent Cree Water |
| Location 6 | NN 24310 05928 | Coniferous plantation woodland |
| Location 7 | NN 24160 05990 | Grassland and directly adjacent to the Croe river corridor |

A11-11.3.25. Bat activity data was gathered using Wildlife Acoustics Song Meter© (SM)4 bat detectors; installed within habitats and features considered suitable for roosting, foraging and commuting bats; grassland (in rocky outcrops), adjacent Loch Restil, mixed plantation woodland and scrub and adjacent to running water (the Croe Water).

A11-11.3.26. The automated static bat detectors were set to commence recording at least 30 minutes before sunset and cease recording 30 minutes after sunrise, the period when bats are considered active.

### Analysis of Automated Static Bat Detector Data

A11-11.3.27. The recordings were analysed using Wildlife Acoustic's Kaleidoscope© for statics and Anabat Insight Auto-ID at 70% Tag Certainty Threshold. The analysis enabled confirmation of species or species group based on call parameters and the relative activity levels of different species of bats by counting the minimum number of bats recorded within discrete sound files.

A11-11.3.28. The automated detectors were triggered to begin recording when a signal exceeding 16khz was detected (a 'trigger event'). Recording continued until there was a gap of three seconds between signals, whereafter the recording would stop. At the next trigger event, a new recording would then be created, resulting in one sound file recording per trigger event. All the SM4 detectors were all set-up to record sound files with a duration of 15 seconds, which may contain several individual bat calls (or passes), or discrete groups of ultrasounds 'pulses'.

A11-11.3.29. A 'bat pass' was defined as one trigger event. If multiple species were recorded within a single recording file, there would be one bat pass for each species recorded. This approach was used to standardise the definition of a bat pass. It should be recognised that a series of separate sound files may represent a series of different bats commuting within the range of an automated static bat detector, or a smaller number of bats repeatedly triggering the detector (e.g. bats making repeated foraging passes within the range of a detector).

A11-11.3.30. A list of all codes and the species they pertain to is provided in Table A11-11.3**.** The code for each bat species was standardised and used when identifying bats during the analysis and have been used in presenting data in this report (Volume 3, Figure 11.11c: Automated Static Detector Results (May - September 2023).

**Table A11-11.3 – Species list and standardised codes**

| Common Name | Scientific Name | Analysis/Figure Code |
|---|---|---|
| Common pipistrelle | *Pipistrellus pipistrellus* | PIPPIP |
| Soprano pipistrelle | *Pipistrellus pygmaeus* | PIPPYG |
| *Pipistrellus* species | *Pipistrellus species* | PIPSP |
| Noctule | *Nyctalus noctula* | NYCNOC |
| *Nyctalus* species | *Nyctalus species* | NYCSP |
| *Myotis* species | *Myotis species* | MYOSP |
| Brown long-eared bat | *Plecotus auritus* | PLEAUR |

A11-11.3.31. All files were analysed using the built-in auto-identification capability of the Kaleidoscope and Anabat Insight software.

A11-11.3.32. All remaining sound files were classified to species level by the auto-identification system. Files were attributed with a specific species identification or classified as 'NoID' where the call parameters could not be identified by the software.

A11-11.3.33. Following the auto-identification process, the following calls were manually checked to verify:

- all 'NoID' and 'Noise' files.
- all species that is not a pipistrelle. and
- all pipistrelle species recordings with a confidence interval rating of 0.7 and below.

A11-11.3.34. The use of the 'confidence interval' parameter, generated through the auto-identification analysis process, enabled the streamlined analysis of common pipistrelle and soprano pipistrelle calls. The confidence interval ranging between >0.01 – 1; a higher number represents a more confident identification of the primary auto-identified species. Common pipistrelle and soprano pipistrelle calls were ranked according to their confidence interval

and only those with a confidence interval of 0.7 and below were manually checked to confirm or correct the analysis.

A11-11.3.35. The following calls were also manually reviewed to provide additional quality assurance:

- all calls of any 'rare' species for the area, e.g., Leisler's bat.
- 10% of common pipistrelle and soprano pipistrelle calls with a confidence interval of 0.5 or less. Where 10% was fewer than 10 tracks, all of the common pipistrelle and soprano pipistrelle tracks were assessed. and
- 10% of all other species. If the number was fewer than 10 tracks, all tracks were checked.

A11-11.3.36. Data logs are generated by the automated static bat detectors which detail the recording history for the periods they were deployed. These logs were assessed to identify the duration which the detectors were deployed.

A11-11.3.37. Social calls were not identified to species level when in isolation and are therefore not included within the results. These comprised a very small proportion of the sound files identified as bats with the vast majority being assigned a species or genus.

A11-11.3.38. As the statics were not deployed for the same number of nights each month, to ensure the data was comparable, the Bat Activity Index Value of each species was calculated for each automated static bat detector. The data is presented as Passes Per Hour (pph) which is calculated using the below formula.

$$Bat\ pph = \frac{Total\ bat\ passes\ recorded\ at\ a\ static\ detector\ location}{Number\ of\ hours\ static\ detector\ surveyed}$$

### Hibernation Surveys

A11-11.3.39. Hibernation surveys of buildings, structures and trees within the Survey Area were undertaken if hibernation suitability was identified, where access was allowed.

A11-11.3.40. Detailed external building and structure inspections for bats were undertaken by licensed bat surveyor(s) in December 2023 and January and February 2024, aligning with periods of cold weather. These involved close and systematic inspection of all accessible cracks, crevices and voids for hibernating bats or evidence of bats (such as droppings) using torches, mirrors and endoscopes, and recording any evidence of use by roosting bats. Internal access was requested, limited surveys were completed where access allowed (see Annex 11.11.B, Table A11-11.7).

A11-11.3.41. Where they could not be fully inspected, buildings and structures had static detectors deployed, internally where possible. Any sound files recorded during the hibernation surveys were analysed as described above.

A11-11.3.42. Bats also use tree roosts over winter. Features used over winter are likely to be insulated from extreme temperature fluctuations by surrounding trees or the depth of the feature.

A11-11.3.43. Automated static detectors were deployed in suitable structures/buildings during the hibernation period from December 2023 until March 2024.

### Limitations

A11-11.3.44. Limitations were encountered across the 2023-2024 survey effort which included access constraints, weather conditions and equipment failures. A full list of limitations is provided in Annex 11.11.A.

## A11-11.4. Results

### Desk Study

A11-11.4.1. The desk study identified no records of bats for the last 10 years within the surrounding 2km area.

### Data Review

A11-11.4.2. Transect surveys undertaken as part of the 2022 Jacobs AECOM survey effort identified the area to the north of the Survey Area adjacent to the B828 near Loch Restil and the south of the survey area near the Croe Water and

woodland edge having the greatest levels of bat activity. With the transects identifying soprano pipistrelle, common pipistrelle and *Myotis* species, with soprano pipistrelle being the predominant species. These species were also identified during static bat detector monitoring undertaken as part of the 2022 Jacobs AECOM survey effort. A total of 70% of calls recorded during static detector monitoring were identified as soprano pipistrelle. The remainder of the calls recorded during this survey effort were of common pipistrelle (16.2%), unidentified *Myotis* species (8.1%), brown long-eared bat (4.8%) and unidentified *Pipistrellus* species (0.84%).

A11-11.4.3. A review of 2022 Jacobs AECOM returned the following bat roosts.

**Table A11-11.4 – Confirmed bat roosts recorded in 2022**

| Reference | Species (Max Count) | Roost Category |
|---|---|---|
| BT3 | Soprano pipistrelle (2)<br>Unidentified bat species (5)<br>*Myotis* species (12) | Non-breeding day roost of soprano pipistrelle and unidentified bat species<br>Maternity roost of *Myotis* species bat |
| BS2 | *Myotis* species (1) | Non-breeding day roost |
| BS11 | *Myotis* species (1) | Non-breeding day roost |
| BB2 | Soprano pipistrelle (2) | Non-breeding day roost |
| BB3 | Soprano pipistrelle (1) | Non-breeding day roost |
| BB4 | Pipistrelle species (1)<br>Brown long-eared bat (1) | Non-breeding day roosts |
| BB5 | Soprano pipistrelle (2) | Non-breeding day roost |
| BB8 | Soprano pipistrelle (3)<br>*Myotis* species (1) | Non-breeding day roosts |
| BB10 | Soprano pipistrelle (1) | Non-breeding day roost |

### Field Survey Results

A11-11.4.4. Field survey results completed for the Proposed Scheme undertaken between 2023 and 2024 are shown in Volume 3, Figure 11.11b: Bat Dusk Emergence/Dawn Re-entry and Inspection Survey Results. The survey results have been compiled, analysed with the result of the most recent bat roosting potential assessment shown.

### PBRA Survey Results

A11-11.4.5. Full details of the results of the PBRA surveys are provided in Annex 11.11.B.

A11-11.4.6. The updated PBRA surveys in 2023/2024 recorded nine buildings, 18 structures and six trees with bat roosting potential within the survey area. Two tree roosts were identified during the PBRA's and a single hibernating brown long-eared bat was present in 'the Cave Complex' (BC2) (NN 223540 707335). Including the 13 roosts confirmed in 2022 and the additional roosts identified during the 2023/2024 PBRA, a total of 17 bat roosts were recorded.

### Rope Access Survey Results

A11-11.4.7. The results of the rope access surveys are provided in Table A11-11.11.

A11-11.4.8. The south west facing section of the quarry had no suitable PRF's visible from ground level. Other PRF's inspected had moderate, low and negligible suitability as shown in Annex 11.11.B.

A11-11.4.9. A section of the 'the Cave Complex' was assessed as a confirmed roost (single hibernating brown long-eared bat), and 'the Cave Complex' was also assessed as offering features of high and moderate roosting suitability, with dry areas of rock within voids and multiple cracks and crevices. Evidence of bat droppings were recorded in BC2 'the Cave Complex' and beneath the location of the brown long-eared bat roost identified from the initial PBRA at the entrance of BC1 'the Cave Complex' (Annex 11.11.B, Table A11-11.8).

### Presence/Likely Absence Survey Results (2023/2024)

A11-11.4.10. The results of the PRBA surveys were used to determine if further surveys were required, the number and the appropriate method and timings of survey. These included dusk emergence/dawn re-entry surveys, rope access surveys and additional inspection surveys.

A11-11.4.11. Table A11-11.5 summarises the results of the presence/likely absence surveys including the results from dusk emergence/dawn re-entry surveys, rope access surveys and endoscope inspection surveys. The roost type and final roost assessment is also provided. Full details of dusk emergence/dawn re-entry surveys (including previous known survey efforts and the 2024 survey effort rationale) are provided in Annex 11.11.F. Weather conditions, dates and timings of the dusk emergence and the dawn re-entry surveys conducted are provided in A11-11.5.5.Annex 11.11.C. Rope access survey results are provided in Table A11-11.11. Specific roost location pictures are included in Annex 11.11.G. The 2024 survey effort rationale is presented in Table A11-11.5.

**Table A11-11.5 – Bat Roost Survey Results, Roost Type and Final Roost Assessment**

| Ref. | Final Assessment | 2022 Roost Results | 2023 Roost Results | 2024 Roost Results | Roost Type (Max Count) |
|---|---|---|---|---|---|
| BB1 | Confirmed roost | No roost found | Soprano pipistrelle day roost (2), common pipistrelle day roost (1), *Myotis* species day roost (1) | No roost found | Soprano pipistrelle day roost (2), common pipistrelle day roost (1), *Myotis* species day roost (1) |

| Ref. | Final Assessment | 2022 Roost Results | 2023 Roost Results | 2024 Roost Results | Roost Type (Max Count) |
|---|---|---|---|---|---|
| BB2 | Confirmed roost | Soprano pipistrelle day roost (2) | No roost found | No roost found | Soprano pipistrelle day roost (2) |
| BB3 | Confirmed roost | Soprano pipistrelle day roost (1) | No surveys carried out | No roost found | Soprano pipistrelle day roost (1) |
| BB4 | Confirmed roost | Unidentified Pipistrelle species day roost (1), brown long-eared bat day roost (1) | 1 unidentified bat species day roost | Droppings found indicating continued use | Pipistrelle species day roost (1), brown long-eared day roost (1), unidentified bat species (1) |
| BB5 | Confirmed roost | Soprano pipistrelle day roost (2) | No roost found | No roost found | Soprano pipistrelle day roost (2) |
| BB7 | High | No roost found | No roost found | No roost found | N/A |
| BB8 | Confirmed roost | Soprano pipistrelle day roost (3), *Myotis* species day roost (1) | Soprano pipistrelle day roost (5) | No surveys carried out | Soprano pipistrelle day roost (5), *Myotis* species day roost (1) |
| BB10 | Confirmed roost | Soprano pipistrelle day roost (1) | Common pipistrelle (3) | No surveys carried out | Common pipistrelle day roost (3), soprano pipistrelle day roost (1) |

| Ref. | Final Assessment | 2022 Roost Results | 2023 Roost Results | 2024 Roost Results | Roost Type (Max Count) |
|---|---|---|---|---|---|
| Cave Complex 'BC1/ BC2' | Confirmed roost | No surveys carried out | No surveys carried out | Brown long-eared hibernation roost (1) (BC2), Assumed day roost (species unknown) | Brown long-eared hibernation roost (1), assumed day roost for small numbers of bats based on droppings found (species unknown) |
| BS1 | High | No roost found | No roost found | No surveys carried out | N/A |
| BS2 | Confirmed roost | *Myotis* species day roost (1) | *Myotis* species day roost (1) | Common pipistrelle (1) | Common pipistrelle day roost (1), *Myotis* species day roost (1) |
| BS7 | Moderate | No roost found | No roost found | No surveys carried out | N/A |
| BS11 | Confirmed roost | *Myotis* species day roost (1) | No roost found | No roost found | *Myotis* species day roost (1) |
| BS17 | Low | No surveys carried out | No surveys carried out | No roost found | N/A |
| BS18 | Low | No surveys carried out | No surveys carried out | No roost found | N/A |
| BS20 | Low | No surveys carried out | No surveys carried out | No roost found | N/A |
| BS21 | Low | No surveys carried out | No roost found | No surveys carried out | N/A |

| Ref. | Final Assessment | 2022 Roost Results | 2023 Roost Results | 2024 Roost Results | Roost Type (Max Count) |
|---|---|---|---|---|---|
| BS22 | Moderate | No surveys carried out | No surveys carried out | No roost found | N/A |
| BS24 | Confirmed roost | No surveys carried out | No surveys carried out | Soprano pipistrelle day roost (1) | Soprano pipistrelle day roost (1) |
| BS25 | Low | No surveys carried out | No surveys carried out | No roost found | N/A |
| BT3 | Confirmed roost | *Myotis* species maternity roost (12), soprano pipistrelle day roost (2) unidentified bat species day roost (5) | 1 *Myotis* species day roost | No surveys carried out | *Myotis* species maternity roost (12), soprano pipistrelle day roost (2) unidentified bat species day roost (5) |
| BT4 | Confirmed roost | No surveys carried out | No roost found | *Pipistrellus* species day roost (1) | *Pipistrellus* species day roost (1) |
| BT5 | Confirmed roost | No surveys carried out | Soprano pipistrelle day roost (1) | No surveys carried out | N/A |
| BT6 | Low | No surveys carried out | No roost found | No surveys carried out | N/A |

| Ref. | Final Assessment | 2022 Roost Results | 2023 Roost Results | 2024 Roost Results | Roost Type (Max Count) |
|---|---|---|---|---|---|
| BT8 | Low | No surveys carried out | No roost found | No surveys carried out | N/A |
| BT9 | Low | No surveys carried out | No roost found | No surveys carried out | N/A |

A11-11.4.12. During the deployment of camera traps for terrestrial mammals in PM5 (see Appendix 11.9: Pine Marten Report), a single unidentified bat and a brown long-eared bat were identified flying within the rock feature. It has been assumed that these bats are using the structure to roost given the inaccessibility for further surveys.

A11-11.4.13. Annex 11.11.I contains a full list of each building, structure and tree surveyed, the distance from the Proposed Scheme and the associated roosting potential of each feature. The summary of the confirmed roost locations includes five confirmed roost located (BB2, BS2, BS11, BS24, BT4) within the Proposed Scheme, three confirmed roost locations within 30m (BB3, BB4, BB5) and three confirmed roosts within 100m (BB1, the 'Cave Complex', PM5). The remaining four confirmed roosts (BB8, BB10, BT3, BT5) are outside the 100m survey area.

### Automated Static Bat Detector Results (May - September 2023)

A11-11.4.14. The results from the automated static bat detectors, deployed across seven locations (Volume 3, Figure 11.11c: Automated Static Bat Detector Results (May-September)) throughout the latter half of summer period, are summarised below and shown in Annex 11.11.H, Table A11-11.13.

#### 'The Cave Complex'

A11-11.4.15. A total of two *Myotis* species calls were recorded at BC1.

A11-11.4.16. At least three bat species were recorded at BC2:

- common pipistrelle
- soprano pipistrelle and
- *Myotis* spp.

A11-11.4.17. The majority of calls comprised *Myotis* spp: 75 bat passes recorded in total (an average of 21pph; 92% of total bat passes). The remaining 8% of bat activity comprised with three common pipistrelle bat passes (<1pph) and three soprano pipistrelle bat passes (<1pph).

A11-11.4.18. The timings of the bat passes recorded indicate that structure BC2 could be used for foraging or socialising purposes, as the bat passes were recorded outside of what is considered typical emergence times for these species. The earliest bat pass recorded more than two hours after sunset it is considered more likely to be associated with bat foraging/socialising.

### Location 1

A11-11.4.19. A total of 454 bat passes were recorded within 96 hours over period of 15 nights, equating to 30.3 bat passes per night (a bat activity rate of 0.5b/h).

A11-11.4.20. The majority of these calls comprised soprano pipistrelle (338 bat passes; 22.5 b/n; 0.37 b/h; 74.5% of bat activity) followed by *Myotis* species (82 bat passes; 5.5 b/n; 0.09 b/h; 18% of bat activity), common pipistrelle (21 bat passes; 0.09b/n; 0.02 b/h; 4.5% of bat activity); *Pipistrellus* species (12 bat passes; 0.8b/n; 0.01 b/h; 2.6% of bat activity) and then brown long-eared bat (1 bat pass; 0.06 b/n; 0.00 b/h; 0.2% of bat activity).

A11-11.4.21. Most bat calls recorded at Location 1 were within the 2 hours after sunset to 2 hours before sunrise period. One notable *Myotis* species call recorded one evening between 30 minutes before sunset and 1 hour before sunrise, in addition ten calls were recorded between an hour before sunrise and half an hour after sunrise. Data suggests a *Myotis* species roost may be present nearby Location 1. Additionally, 37 soprano pipistrelle passes were recorded at this location between 1 hour before sunrise and 30 minutes after sunrise. These times also coincide with this species typical roost re-entry period

(Russ, 2012) suggesting that a soprano pipistrelle roost may also be present within this area.

### Location 2

A11-11.4.22. A total of 22 bat passes were recorded within the 96 hours over a period of 15 nights, equating to 1.5 bat passes per night (a bat activity rate of 0.03 b/h).

A11-11.4.23. The majority of these calls comprised soprano pipistrelle (15 bat passes; 1 b/n; 0.02 b/h; 68.1% of bat activity) followed by *Myotis* species (7 bat passes; 0.46 b/n; 0.01 b/h; 31.8% of bat activity).

A11-11.4.24. Most bat calls recorded at Location 2 were within the 2 hours after sunset to 2 hours before sunrise period. One notable *Myotis* species call recorded on one morning between an hour before sunrise and half an hour after sunrise. This single call suggests that a *Myotis* species roost may be present nearby.

### Location 3

A11-11.4.25. A total of 1217 bat passes were recorded within the 96 hours over period of 15 nights, equating to 81.1 bat passes per night (a bat activity rate of 1.01 b/h).

A11-11.4.26. The majority of these calls comprised soprano pipistrelle (825 bat passes; 55 b/n; 0.68 b/h; 67.8% of bat activity) followed by common pipistrelle (163 bat passes; 10.9 b/n; 0.13 b/h; 13.4% of bat activity), *Myotis* species (104 bat passes; 6.9 b/n; 0.09 b/h; 8.5% of bat activity), pipistrelle species (67 bat passes; 4.47 b/n; 0.06 b/h; 5.5% of bat activity) and then brown long-eared bat (58 bat passes; 3.8 b/n; 0.05 b/h; 4.77% of bat activity).

A11-11.4.27. Most bat passes recorded here were in the 2 hours after sunset to 2 hours before sunrise period with notable calls including a number of calls (96 passes) of soprano pipistrelle, common pipistrelle, *Myotis* species, pipistrelle species and brown long-eared bats 30 minutes before sunrise and 60 minutes after sunset. These calls suggest roosts belonging to all of these species present in this area or nearby the detector location.

### Location 4

A11-11.4.28. A total of 260 bat passes were recorded within the 64 hours over period of 10 nights, equating to 26 bat passes per night (a bat activity rate of 0.25 b/h).

A11-11.4.29. The majority of these calls comprised brown long-eared bat (94 bat passes; 9.4 b/n; 0.09 b/h; 36.2% of bat activity) followed by soprano pipistrelle (89 bat passes; 8.9 b/n; 0.09 b/h; 34.2% of bat activity) and then *Myotis* species (37 bat passes; 3.7 b/n; 0.04 b/h; 14.2% of bat activity) common pipistrelle (25 bat passes; 2.5b/n; 0.02b/h; 9.6% of bat activity); pipistrelle species (15 bat passes; 1.5 b/n; 0.01 b/h; 5.8% of bat activity).

A11-11.4.30. Most bat calls recorded here were in the 2 hours after sunset to 2 hours before sunrise. A number of calls of soprano pipistrelle, common pipistrelle, *Myotis* species, pipistrelle species and brown long-eared bats an hour before sunrise and 30 minutes after. These calls suggest that a roost of these species may be proximal to this location.

### Location 5

A11-11.4.31. A total of 844 bat passes were recorded within the 96 hours over period of 15 nights, equating to 52 bat passes per night (a bat activity rate of 0.7 b/h).

A11-11.4.32. The majority of these calls comprised soprano pipistrelle (374 bat passes; 24.9 b/n; 0.31 b/h; 44.3% of bat activity) followed by common pipistrelle (214 bat passes; 14.3b/n; 0.18b/h; 25.36%) and then *Myotis* species (91 bat passes; 6.1b/n; 0.08 b/h; 10.8% of bat activity), pipistrelle species (87 bat passes; 5.8 b/n; 0.07 b/h; 10.3% of bat activity) and brown long-eared bat (78 bat passes; 5.2 b/n; 0.06 b/h; 9.2% of bat activity).

A11-11.4.33. Most bat calls recorded here were in the 2 hours after sunset to 2 hours before sunrise period with one notable soprano pipistrelle call recorded one evening between 30 minutes before sunset and 1 hour before sunrise this followed by a number of calls in the morning between an hour before sunrise and half an hour after sunrise suggests that a soprano pipistrelle species roost may be present nearby to Location 5. In addition, 125 common

pipistrelle calls in the morning between an hour before sunrise and half an hour after sunrise suggests that a common pipistrelle roost may also be present within this area. In addition to this *Myotis* species, brown long-eared bat and pipistrelle species calls were recorded during this period suggesting that they may also being roosting proximal to this location.

### Location 6 and 7

A11-11.4.34. Location 6 and 7 were added for Deployment 3 following a review of the first two deployments and with the most up to date Proposed Scheme information. However, Location 6 data was corrupted and Location 7, located directly adjacent to the Croe Water corridor, was damaged by flooding. As a result, no data was collected for either location.

### Static Data Collective Results

A11-11.4.35. The automated static bat detectors deployed during the summer (May-September 2023) suggest that soprano pipistrelle is the most abundant species present across the habitats surveyed within the Proposed Scheme. However, Location 4 recorded brown long-eared bat being most frequently. Location 2 which was placed in open grassland habitat adjacent to the A83 recorded the lowest number of bat passes out of the five locations surveyed. Location 3 within mixed plantation woodland and scrub recorded the highest number of bat passes.

### Hibernation Survey Results

A11-11.4.36. The results from the automated static bat detectors, deployed across five locations (Volume 3, Figure 11.11d: Automated Static Bat Detector Results (Winter 2023-2024)), are summarised below.

### Automated Static Bat Detector Results (December – March)

A11-11.4.37. One bat pass was recorded at location BB7. A single soprano pipistrelle was recorded on one evening 2 hours after sunset on 3 January 2024.

A11-11.4.38. One bat pass was recorded at location BS1. A single soprano pipistrelle was recorded on the 15 January 2024 3 hours after sunset. All other static locations did not record any activity of bats.

A11-11.4.39. No further bat calls were recorded during the automated static detector deployment across the hibernation period, but it should be assumed that buildings or structures with roosts do provide hibernation opportunities.

### Hibernation Inspection Results

A11-11.4.40. On the 18 January 2024 during the static detector deployment of 'the Cave Complex' (BC2) a single brown long-eared bat was recorded in torpor roosting within 'the Cave Complex' (BC2). A single hibernating brown long-eared bat was recorded at the same location on 23 February 2024. No bat calls were recorded at the cave complex location during the December-March deployments. Several droppings were recorded beneath this same roost location on 23 May 2024. However, as brown long-eared bats have very quiet echolocation calls and must have been within 5m to have been detected and the infrequency of calls during the hibernation period, this may explain the absence of sound data in Russ, 2012 British bat call identification.

## A11-11.5. Discussion and Conclusion

A11-11.5.1. As a result of the 2023-2024 surveys and 2021/22 data review, the following roost were identified; 18 non-breeding day roosts of soprano pipistrelle (BB1, BB2, BB3, BB5, BB8, BB10, BS24, BT5), common pipistrelle (BB1, BB4, BB10, BS2), unidentified *Pipistrellus* species (BT4), brown long-eared bat (BB4) unidentified *Myotis* species (BS2, BT3, BS11) and unidentified bat species (BT3). A maternity roost of an unidentified *Myotis* species was identified in BT3. A single hibernating brown long-eared bat was recorded in BC2 'the Cave Complex'. Droppings were found in both BC1 and BC2 and it is considered likely that 'the Cave Complex' is also used during the summer active period by small numbers of non-breeding bats. PM5 has been assumed to be a non-breeding day roost for an unidentified bat species and

a single brown long-eared bat. Therefore, a total of seven buildings, five structures and three trees were found to support 22 bat roosts. Results are illustrated in Volume 3, Figure 11.11b: Bat Dusk Emergence/Dawn Re-entry and Inspection Survey Results.

A11-11.5.2. Five of the confirmed roost locations (BB2, BS2, BS11, BS24, BT4) are within the Proposed Scheme, three confirmed roost locations are within 30m (BB3, BB4, BB5) and three confirmed roosts are within 100m (BB1, the 'Cave Complex', PM5). The remaining four confirmed roost locations (BB8, BB10, BT3, BT5) are outside the 100m survey area.

A11-11.5.3. Automated static detector surveys undertaken May-September 2023 identified the Croe Water and adjacent woodland (Location 3, Location 4 and Location 5) and Loch Restil (Location 1) as being frequently used by bats suggesting these are utilised as foraging and commuting habitats. The transect surveys in 2021/2022 also found activity was heavily concentrated in the south of the transect route, where the forest track crosses the River Croe. As these habitats extend/or are situated beyond the Proposed Scheme (Loch Restil) and similar habitat is present with connectivity to the wider landscape, the impacted habitat within the Proposed Scheme is not considered to be of high value in the wider context.

A11-11.5.4. As small numbers of soprano pipistrelle calls were recorded during the hibernation survey period (December to February inclusive), it suggests that this species is hibernating within or in proximity to the Proposed Scheme. Pipistrelle roosts have been identified across the survey area during the summer, therefore there is a high likelihood that these buildings/structures/trees may be utilised by pipistrelle bats for hibernation BatAbility (2019): Bat Hibernation Assessments – A Practical Approach Draft Document: Version 2.

### Report Validity

A11-11.5.5. The survey results in this baseline report are in line with CIEEM lifespan of reports guidance. Surveys are recommended to be repeated should the time

between survey and work commencing reach beyond the two survey season period, in line with Standing advice for planning consultations – Bats NatureScot.

# Annexes

# Annex 11.11.A. Limitations

**Table A11-11.6 - Full details of survey limitations**

| Limitation | Details |
|---|---|
| BC1 and BC2 'The Cave Complex' | Due to health and safety reasons (steeps slopes and enclosed spaces) activity surveys during the summer could not be completed. However, automated static detector surveys were completed and additional survey data has been obtained for this location through internal inspections (including rope access) and hibernation surveys.<br>The absence of summer bat data for 'The Cave Complex' is not considered a significant limitation to the assessment as 'The Cave Complex' is considered to only support low numbers of non-breeding bats (it is considered more suitable for hibernating bats due to the colder temperatures it offers). |
| Weather | Weather was a limiting factor across the dusk emergence/dawn re-entry surveys during the 2024 summer season with consistent suboptimal weather limiting when surveys could be undertaken. This meant that some surveys were undertaken during suboptimal weather.<br>Heavy rain was present during dusk emergence surveys at BB3 and BS22 in 2024. Both BB3 and BS22 were resurveyed. Rain was present approximately 1.5 hours after sunset during surveys undertaken and BS18 and BS24 |

| Limitation | Details |
|---|---|
| | in August 2024, but bats were still recorded foraging during both surveys and the survey covered the typical emergence times of all species therefore this was not considered to be a major limitation. |
| Deviation from guidance | Building BB1 was subject to two emergence surveys during the active survey season, rather than the recommended three surveys (as a high roosting suitability structure). The surveys were conducted at the end of what is considered peak maternity period for most bat species (August and September) and limited numbers of bats were recorded. It is possible that if a maternity roost is present that it could have been missed as bats may have already dispersed. This building falls outwith the Proposed Scheme. As such no survey was deemed required in 2024. |
| Health and Safety | It was not possible to conduct an internal inspection of BB1 due to the poor structural condition of the roof of both the main building and the associated shed. It is considered that the activity surveys conducted, supported with IR cameras, provided sufficient cover of the potential roost features identified. It is therefore not considered to be a significant limitation to the assessment provided within this report. |
| No access | No access was granted for BB8 during the 2023 hibernation survey period.<br>BB2, BB3 and BB5 were not able to be fully inspected during the 2023/2024 hibernation period due to the presence of asbestos. Limited external inspections were undertaken on BB2, BB3 and BB5 in December 2023. |

| Limitation | Details |
|---|---|
| | An emergence survey of BS7 was refused by the landowner during August 2023. A daytime inspection of the structure was, however, conducted during the August survey period using an endoscope. This survey was able to inspect features accessible from the ground and included all features identified which could support a bat roost.<br>Access was not granted to land in the middle of the Proposed Scheme (NN238064) between July and beginning of August 2024, bat activity surveys on structures, trees and buildings could therefore not be undertaken until August 2024. This meant that, during the bat maternity season and periods of particularly suitable survey weather in 2024, none of the features within the central section of the Proposed Scheme (adjacent the Old Military Road (OMR)) were surveyed. However, 2024 surveys were completed in line with guidance and these structures/buildings have been surveyed in the past to confirm roosts. Impacts are still able to confidently be predicted and further surveys will be undertaken prior to any construction to inform licence applications. |
| Automated static detector deployment (May–September 2023) | Static detectors were not deployed across the central section of the Proposed Scheme (NN238064) and were primarily focused on typical potential important foraging and commuting habitat (i.e. woodland edge, scrub, waterbodies). However, bat activity surveys on structures and buildings have been conducted in this area and bat roosts identified. Activity in the immediate area of these survey locations were noted on these surveys. This assessment assumes that any linear blue and green infrastructure features would be used by bats for foraging and commuting purposes. |

| Limitation | Details |
|---|---|
| Data | Data from the static detector at Location 4 was corrupted in early August 2023. A second deployment was made in August 2023 and a third in September 2023. Location 6 and Location 7 were new locations for Deployment 3, Location 6 was corrupted and Location 7 was damaged due to high flood waters. As a result, no data was collected for Location 6 or 7. However, the remainder of the activity data made up of static, transect and observations during dusk/dawn surveys across the scheme gives a good indication of how the chosen habitat locations are being by bats for foraging and commuting and the species assemblage present. As such, this is not considered a significant limitation. |

# Annex 11.11.B. PBRA and Inspection Results

## 11-11.B.1. Tables showing PBRA Results, Inspection Results and Walkover Survey Results

**Table A11-11.7 – PBRA and inspection results for Trees (BT), Buildings (BB) and Structures (BS)**

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB1 | Roost | 2 emergence/ re-entry survey | No roost found | 2 emergence surveys | 2 soprano pipistrelle<br>1 common pipistrelle<br>1 *Myotis* species | 2 emergence surveys | No roost found | Approximately 90m outside the Proposed Scheme, no piling or blasting expected in this area. No further survey necessary. |
| BB2 | Roost | 1 emergence survey | 2 soprano pipistrelle | 2 emergence surveys | No roost found | 1 emergence surveys | No roost found | BB2 is directly adjacent to the Proposed Scheme. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB3 | Roost | 3 emergence surveys | 2 soprano pipistrelle | No surveys carried out | N/A | 2 emergence surveys | No roost found | BB3 is directly adjacent to the Proposed Scheme. |
| BB4 | Roost | 2 endoscope inspections | 1 x brown long-eared bat<br>1 x common pipistrelle | 2 endoscope inspections, 1 adhoc endoscope inspection | 1x bat (adhoc) | 1 endoscope inspection | No roost found | BB4 is directly adjacent to the Proposed Scheme. |
| BB5 | Roost | 2 emergence surveys | 2 x soprano pipistrelle | 1 emergence survey | No roost found | 2 emergence surveys | No roost found | Within 20m of Proposed Scheme. |
| BB6 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Temporary buildings not found. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB7 | High | 1 emergence survey | No roost found | 1 emergence survey and an automated detector deployed for 21 days. | Automated detector deployed inside structure for 21 days. No evidence of bats recorded. | No surveys carried out | N/A | Scoped out as over 200m from the Proposed Scheme. No further survey necessary. |
| BB8 | Roost | 2 emergence surveys | 3x soprano pipistrelle | 2 emergence surveys | 8 x soprano pipistrelle | No surveys carried out | N/A | Scoped out as approximately 170m west of the Proposed Scheme. |
| BB9 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB10 | Roost | 1 emergence survey | 1 x soprano pipistrelle<br>1 x common pipistrelle | 2 emergence surveys | 5 x common pipistrelle | No surveys carried out | N/A | Scoped out due to distance. Continued roost use established in 2022 and 2023. |
| BC1 | Roost | No surveys carried out | N/A | No surveys carried out | N/A | 1 inspection | Brown long-eared hibernation roost (1), assumed day roost for small numbers of bats based on droppings found (species unknown). | Rope climbing inspections carried out due for healthy and safety purposes due to enclosed space and steepness. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BC2 | Roost | No surveys carried out | N/A | No surveys carried out | N/A | 1 inspection | Brown long-eared hibernation roost (1), assumed day roost for small numbers of bats based on droppings found (species unknown). | Rope climbing inspections carried out due for healthy and safety purposes due to enclosed space and steepness. |
| BS1 | High | 1 inspection | No roost found | 3 emergence surveys | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023. Scoped out by virtue of distance. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS2 | Roost | 2 emergence surveys | 1x *Myotis* species | 2 emergence surveys | 1x *Myotis* species | 1 emergence survey | 1x Common pipistrelle | Direct impact to bridge likely. Within Proposed Scheme. |
| BS3 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out by virtue of distance. |
| BS4 | Moderate | 3 emergence surveys | No roost found | No surveys carried out | N/A | No surveys carried out | N/A | Loch Lomond Trossachs National Park Sign. Scoped out by virtue of distance. |
| BS5 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS6 | Low | No surveys carried out | N/A | 2 emergence surveys | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023. |
| BS7 | Moderate | 2 emergence surveys | No roost found | 2 emergence surveys with endoscope inspection | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023. |
| BS8 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out. |
| BS9 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS10 | Moderate | 3 emergence surveys | No roost found | No surveys carried out | N/A | 2 emergence surveys | No roost found | Within Proposed Scheme. |
| BS11 | Roost | 1 emergence and 1 re-entry surveys | 1x *Myotis* species | 1 emergence survey | No roost found | 2 emergence surveys | No roost found | Within Proposed Scheme. |
| BS12 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS13 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS14 | Low/Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS15 | Low | 2 emergence surveys | No roost found | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance. |
| BS16 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance. |
| BS17 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance. |
| BS18 | Low | No surveys carried out | N/A | No surveys carried out | N/A | 1 emergence survey | No roost found | Within Proposed Scheme. |
| BS19 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS20 | Low | No surveys carried out | N/A | No surveys carried out | N/A | 2 emergence survey | No roost found | Within Proposed Scheme. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS21 | Low | No surveys carried out | N/A | 1 endoscope inspection | No roost found | No surveys carried out | N/A | Scoped out. |
| BS22 | Moderate | No surveys carried out | N/A | No surveys carried out | N/A | 2 emergence surveys | No roost found | Within Proposed Scheme. |
| BS23 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Dry stone wall. Disproportionate to warrant an emergence. |
| BS24 | Moderate | No surveys carried out | No roost found | No surveys carried out | No roost found | 2 emergence surveys | 1 soprano pipistrelle emergence | Within Proposed Scheme. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS25 | Low | No surveys carried out | No roost found | No surveys carried out | No roost found | 1 emergence survey | No roost found | Within Proposed Scheme. |
| BT1 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Not found assumed felled. |
| BT2 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Not found assumed felled. |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BT3 | Roost | 1 emergence and 1 re-entry survey | 17 *Myotis* species, 3 soprano pipistrelle, 1 unidentified bat species | 1 emergence and1 re-entry surveys | 1 *Myotis* species | No surveys carried out | N/A | No direct impact. Scoped out by virtue of distance from the Proposed Scheme. |
| BT4 | Roost | No surveys carried out | N/A | 1 emergence and 1 re-entry surveys | No roost found | 1 emergence survey | 1 unidentified bat species (flight pattern and size indicative of a P*ipistrellus* species) | Within Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BT5 | Roost | No surveys carried out | N/A | 1 inspection | *Pipistrellus* species day roost (1) | No surveys carried out | N/A | Within Proposed Scheme |
| BT6 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Within Proposed Scheme |
| BT7 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BT8 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Not surveyed. Scoped out by virtue of distance from the Proposed Scheme |
| BT9 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Not surveyed. Scoped out by virtue |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | of distance from the Proposed Scheme |
| BT10 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Not found assumed felled |

**Table A11-11.8 - Walkover Survey Results undertaken 23 February 2024**

| Grid Reference | Description | Photograph(s) |
|---|---|---|
| NN 223146 707375 | Rock exposure above drilled/blasted rock face on A83 near Rest and be Thankful car park.<br>PRF – Joint in strata with cavity circa 30cm in length, 2cm width and extending 30cm into rock. Occasional damp areas within. No evidence of roosting bats. Rope access survey not required.<br>BRS: Low | Refer to Annex 11-11.B.2, Photograph 42 |
| NN 223235 707381 | Rock exposure north-east of drilled/blasted rock face on A83 near Rest and be Thankful car park.<br>PRF – Small near vertical joint circa 60cm in length, 1.5cm width and extending >30 cm into rock. No evidence of roosting bats. Rope access survey not required.<br>BRS: Low | Refer to Annex 11-11.B.2, Photograph 43 |
| NN 223540 707335 | Complex caves/cavities formed by very large boulders and slippages/failures. Several entrances to voids noted with multiple areas providing suitable PRF. | Refer to Annex 11-11.B.2, Photograph 44 & 45 |

| | | |
|---|---|---|
| | Rope access/confined space entry required to survey via narrow entrance with large vertical drop and void extending down and into hill side >10m out of sight.<br>x1 hibernating brown long-eared bat recorded in accessible cave with dry sheltered conditions.<br>BRS: Confirmed/High | |

# 11-11.B.2. Survey Photographs

## Photographs associated with Table A11-11.7

**Photograph 1: This photograph shows BB1, an abandoned residential building with a slate roof. Slipped tiles on the northeast and southwest pitches and lifted lead flashing around the chimney and roof ridge are present providing overall high roosting and hibernation suitability.**

**Photograph 2: This photograph shows BB2, a cow shed with a concrete base with corrugated panelling on three sides. A confirmed roost is present on this structure and low hibernation suitability has been recorded.**

**Photograph 3: This photograph shows BB3, a wooded cladded shed with a corrugated metal roof, where a confirmed roost is present and low hibernation suitability has been recorded.**

**Photograph 4: The photograph shows BB4, a cattle shed with a corrugated metal roof and attached wooden panelling, where a confirmed roost is present and low hibernation suitability has been recorded.**

**Photograph 5: This photograph shows BB5, a cattle shed with a concrete base, wooden upper cladding, a metal frame and is open to the elements on the west side of the structure. The structure consists of a gated flat roof. The wooden cladding on the north side of the building is damaged/missing. A confirmed roost is present within this structure, and an overall low hibernation suitability has been classified.**

**Photograph 6: This photograph shows BB7, an old stone building with slate roof and double skinned brick walls. The structure is located beside a road and is empty and unused with a door broken off hinges. This structure was classified as having high roosting and hibernation suitability.**

**Photograph 7: The photograph shows BB8, a cottage with loose tiles and gaps on the south side, with raised flashing and material creating additional gaps. There is also a gap between the extension and the main building, and multiple gaps under the soffit box on both the north and south sides. A confirmed roost is present within this structure, and an overall high hibernation suitability has been classified.**

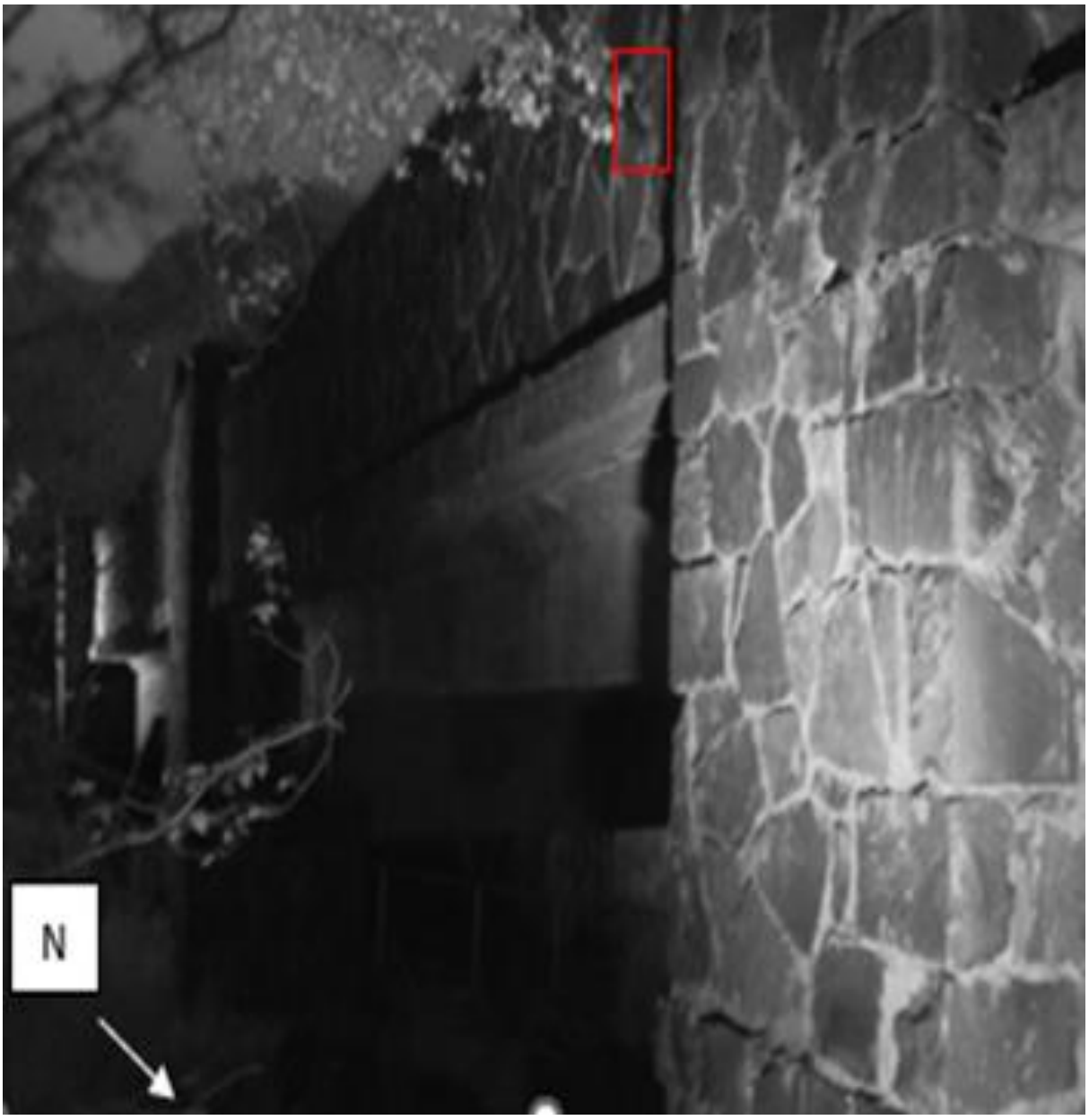
**Photograph 8: This photograph shows BB10, a derelict/dilapidated barn with a collapsed corrugated metal roof. The structure consists of multiple complex features present on all external elevations. Confirmed day roosts have been recorded and an overall moderate roost suitability.**

**Photograph 9: This photograph shows BC1, a large cavity with crevices along the rock seam present towards the roof of the cave. This cavity was classified as having high roost and hibernation suitability.**

**Photograph 10: This photograph shows BC2, several large boulders stacked on each other. There is a sizeable opening with smaller openings amongst the stacked boulders. This cavity has a confirmed hibernation roost with low roost suitability.**

**Photograph 11: This photograph shows BS1, A small concreate footbridge spanning over a watercourse. The structure was classified as having moderate roost and hibernation suitability.**

**Photograph 12: The photograph shows BS2, the stone and concrete Cobbler bridge from the East. A red marker box has been added to show the location of the first bat roost at the top of the bridge parapet. The structure was classified as having moderate hibernation suitability.**



**Photograph 13: The photograph shows BS2, the stone and concrete Cobbler bridge from the West. A red marker box has been added to show the location of the bat roost at the top of the bridge wing wall.**

**Photograph 14: The photograph shows BS2, the stone and concrete Cobbler bridge. The red circle shows the location of another confirmed bat roost in this structure.**

**Photograph 15: This photograph shows BS3, the side face of a stone bridge crossing over Croe Water. The bridge outer sides appear to be composed of stone and mortar, while the underside is composed of solid concrete sections. The structure was classified as having negligible roost suitability.**

**Photograph 16: This photograph shows BS5, a metal footbridge crossing over Croe Water. The structure was classified as having negligible roost suitability.**

**Photograph 17: This photograph shows BS6, the stone remains of an old building present on the hillside. Most of the structure appears collapsed with vegetation overgrowth throughout. The structure was classified as having low roost and hibernation suitability.**

**Photograph 18: The photograph shows BS7, a sheep fank consisting of stone walls, in the middle of a grassy green field. The structure was classified as having moderate roost suitability and low hibernation suitability.**

**Photograph 19: This photograph shows BS9, a large pipe culvert, located on a hill under the A83. The structure was classified as having negligible roost suitability.**

**Photograph 20: The photograph shows BS10, a stone bridge arch on a hillside under the Old Military Road. The structure was classified as having moderate roost and hibernation suitability.**

**Photograph 21: The photograph shows BS11, a stone bridge arch on a hillside under the Old Military Road. The structure has a confirmed bat roost and was classified as having moderate hibernation suitability.**

**Photograph 22: This photograph shows BS12, a bus stop located on the side of the road. The structure was classified as having negligible roost suitability.**

**Photograph 23: This photograph shows BS13, a dark green metal storage container. The structure was classified as having negligible roost suitability.**

**Photograph 24: This photograph shows BS14, A dilapidated old boat house with concrete walls and metal roof. The structure was classified as having low roost and hibernation suitability.**

**Photograph 25: This photograph shows BS15, a concrete retaining wall present along the side of the road. A water course is running parallel to the retaining wall. The structure was classified as having low roost and hibernation suitability.**

**Photograph 26: This photograph shows BS16, a steep rock face with deep cracks and crevices. The structure was classified as having low roost and hibernation suitability.**

**Photograph 27: This photograph shows BS17, a large rock on an open hillside with a tree and deep roots emerging through well-developed cracks. The cracks present are considered to have low roost and hibernation suitability.**

**Photograph 28: The photograph shows BS18 (the 'Shrine') at the top of Rest and be thankful viewpoint. A large rock with an almost vertical deep joint is visible with grasses growing on the surrounding rock surfaces. The structure was classified as having low roost suitability and negligible hibernation suitability.**

**Photograph 29: This photograph shows BS19, a piped culvert consisting of a stone wall located under the Old Military Road. The structure is wet, and it is missing mortar on the east side. The structure was classified as having negligible roost suitability.**

**Photograph 30: This photograph shows BS20, a piped culvert consisting of a stone wall, located just under the Old Military Road. The structure is located on a vegetated hillside with a water stream running downhill. The structure was classified as having low roost suitability.**

**Photograph 31: This photograph shows BS21, a piped culvert located under the Old Military Road. The structure consists of a stone wall with several moss growth. Water is collected the base of the pipe among rocky formations. The surrounding terrain appears uneven and natural with scattered rocks and vegetation. The structure was classified as having moderate roost suitability and low hibernation suitability.**

**Photograph 32: This photograph shows BS22, a stone and concrete culvert located under the A83, carrying a headwater downhill towards the Croe Water. This structure is c.1.5m in height. Multiple crevices are located between the stones and concrete face of the culvert. Dense grassy vegetation surrounds the outside part of the structure. The structure was classified as having moderate roost and hibernation suitability.**

**Photograph 33: This photograph shows BS23, a low drystone wall surrounding a grassland field on the hill. The structure was classified as having low roost and hibernation suitability.**

**Photograph 34: This photograph shows BS24, a former quarry site with a steep rocky face and a vegetated ground at the base. The rocks along the cliff face consist of multiple cracks and crevices. The structure was classified as having moderate roost and hibernation suitability.**

**Photograph 35: This photograph shows BS25, a stone with dense vegetation in the foreground, and layby in the background. The structure was classified as having low roost and hibernation suitability.**

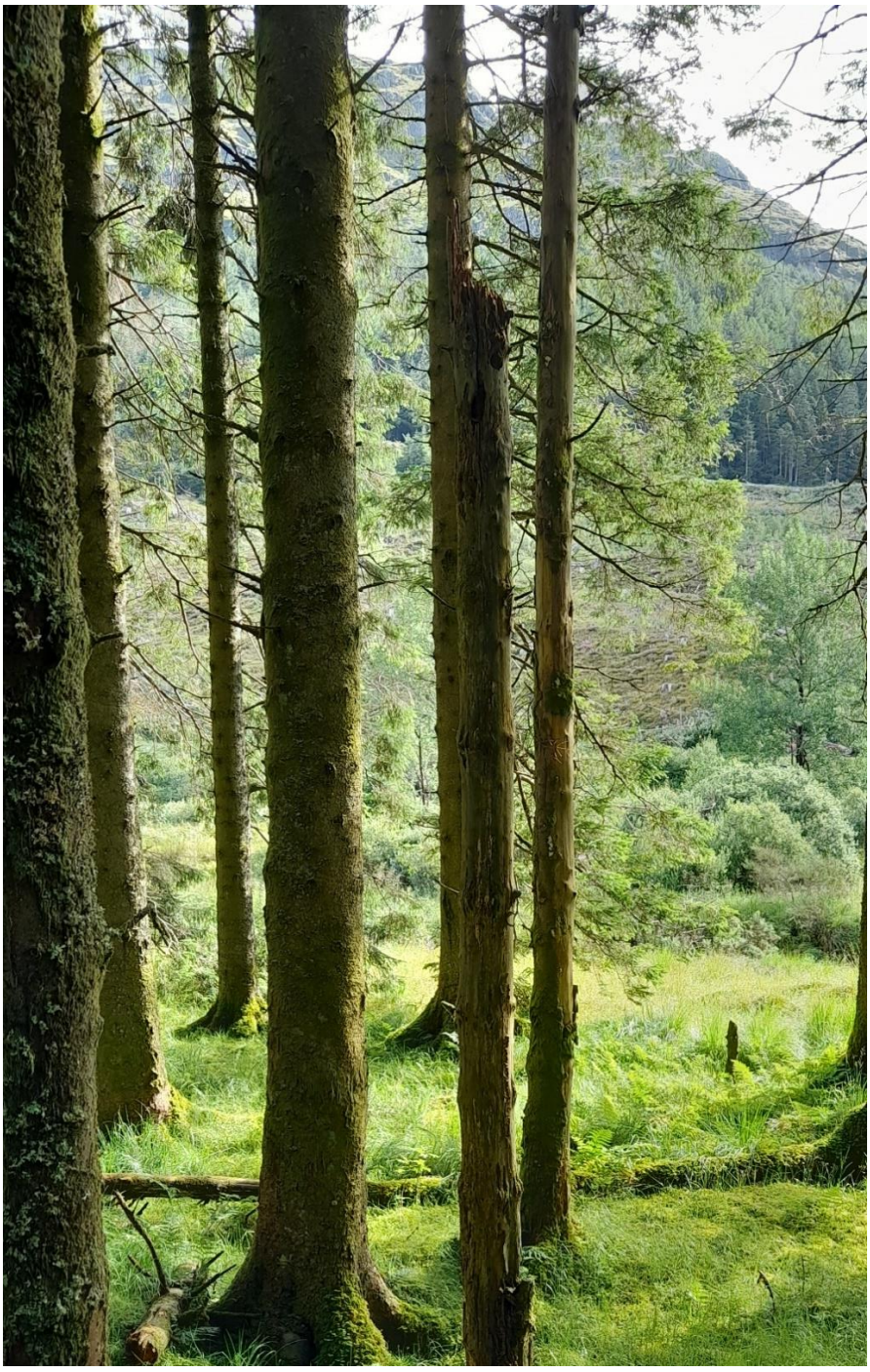
**Photograph 36: This photograph shows BT3, a mature Sycamore tree with multiple woodpecker holes, loose bark, stem cracks and a decay hollow on the main stem. It has been confirmed that this tree supports a day roost of soprano pipistrelle and a maternity roost of *Myotis* species. The tree was classified as having moderate hibernation suitability.**

**Photograph 37: This photograph shows BT4, a mature ash tree with decay hollows along the side of the road. A confirmed *Pipistrellus* species day roost has been identified on the tree. The tree was classified as having low hibernation suitability.**

**Photograph 38: This photograph shows BT5, a fissure created within the bark of the tree. The fissure is surrounded by moss within signs of decay of the wood in the hollow and is a confirmed roost.**

**Photograph 39: This photograph shows BT6, the lichen and moss-covered branch of a tree which then splits into two further branches. The branches hang over a grassy bank and a watercourse. The tree was classified as having low roost suitability.**

**Photograph 40: This photograph shows BT7, located within dead spruce tree stems with woodpecker holes present. The structure was classified as having negligible roost suitability.**



**Photograph 41: This photograph shows BT8, a dead mature Sitka spruce (*Picea sitchensis*) tree with two woodpecker holes present at 3.5m. The tree was classified as having low roost suitability.**

## Photographs associated with Table A11-11.8

**Photograph 42: This photograph shows the rock exposed on the hill, above the drilled/blasted rock face on A83 near the Rest and be Thankful car park. The photograph captures the joints and cavities present within the rock strata.**

**Photograph 43: This photograph shows some rough rock exposure on the hill, north-east of the drilled/blasted rock face on A83 near the Rest and be Thankful car park. Vertical joints run down the rock face with multiple cracks and crevices present on the exposed rock.**

**Photograph 44: This photograph shows complex cave cavities formed by large boulders and slippages/failures. The photograph captures the cave entrance leading into a dark void.**

**Photograph 45: This photograph shows the interior of a cave, where one hibernating brown long-eared bat was observed hanging from the cave roof.**

# Annex 11.11.C. Dusk Emergence and Re-entry Survey Details

**Table A11-11.9 – Dusk emergence and re-entry results**

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| BB1 | 15 August 2023 | 20:40/22:27 | 20:57 | 16/14 | 3/3 | None | 1x soprano pipistrelle day roost identified under lifted roof tile at the west gable end at 21:16 with 1x bat emerging, approximately 19 minutes after sunset<br>1x common pipistrelle day roost recorded from within the building. Emergence recorded at 21:31 with 1x bat emerging, |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| | | | | | | | approximately 34 minutes after sunset<br>1x *Myotis* species Day roost identified beneath lifted ridge tile. Emergence recorded at 21:35, with 1x bat recorded emerging, approximately 38 minutes after sunset |
| BB1 | 26 September 2023 | 18:48/20:38 | 19:08 | 15/14 | 0/0 | None | 1x soprano pipistrelle day roost recorded emerging from beneath a lifted roof tile at the west gable end. Emergence recorded at 19:13 with 1x bat recorded emerging, |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| | | | | | | | approximately seven minutes after sunset |
| BB2 | 07 June 2023 | 21:35/00:02 | 22:02 | 12 | 1 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, and *Myotis* species present |
| BB2 | 27 July 2023 | 21:22/23:37 | 21:37 | 16 | 0-1 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, Natterer's bat and *Myotis* species present |
| BB2 | 07 May 2024 | 20:57/23:12 | 21:12 | 12/10.6 | 0/0 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, Brown long-eared bat and *Myotis* species present |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| BB3 | 08 May 2024 | 20:59/23:14 | 21:14 | 11/11 | 2/0 | Continuous rain | Invalid survey. No emergence, foraging soprano pipistrelle, Pipistrelle species, common pipistrelle, *Myotis* species, Noctule bat |
| BB3 | 30 May 2024 | 21:38/23:53 | 21:53 | 12/10 | 2/0 | None | No emergence |
| BB5 | 05 July 2023 | 21:52/00:07 | 22:07 | 14 | 0 | None | No emergence, foraging Pipistrelle species, soprano pipistrelle, common pipistrelle, Brown long-eared bat and *Myotis* species, and Natterer's bat present |
| BB8 | 25 May 2023 | 21:28/23:43 | 21:43 | 13/9 | 0-0 | None | 3x soprano pipistrelle |
| BB8 | 18 July 2023 | 21:38/23:53 | 21:53 | 13/12 | 0-1 | None | 5x soprano pipistrelle |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| BB10 | 25 May 2023 | 21:28/23:43 | 21:43 | 13/9 | 0-0 | None | 2x soprano pipistrelle |
| BB10 | 28 June 2023 | 21:55/00:10 | 22:10 | 9 | 2 | None | 3x soprano pipistrelle |
| BS1 | 11 May 2023 | 21:00/23:18 | 21:18 | 12 | 1 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, common pipistrelle and *Myotis* species present |
| BS1 | 19 July 2023 | 21:36/23:51 | 21:51 | 14 | 0-1 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, common pipistrelle, *Nyctalus* species and *Myotis* species present |
| BS1 | 07 September 2023 | 19:45/21:59 | 19:59 | 20 | 0 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, common pipistrelle, |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| | | | | | | | *Nyctalus* species and *Myotis* species present |
| BS2 | 02 May 2024 | 20:45/23:02 | 21:02 | 13/11 | 0 | None | Unknown species emerged |
| BS6 | 23 May 2023 | 21:25/23:05 | 21:41 | 11/10 | 3-4/4 | None | No emergences or incidental bat activity recorded |
| BS6 | 20 September 2023 | 19:13/20:45 | 19:27 | 12/12 | 3/3 | None | No emergences or incidental bat activity |
| BS7 | 22 May 2023 | 21:15/23:16 | 21:39 | 11/10 | 2/0-1 | None | No emergences or incidental bat activity |
| BS7 | 20 September 2023 | 19:13/20:45 | 19:27 | 12/12 | 3/3 | None | No emergence, foraging common and soprano pipistrelle species present |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| BS10 | 07 May 2024 | 20:57/23:42 | 21:12 | 12/12 | 2/2 | None | No emergence, foraging soprano pipistrelles present |
| BS10 | 08 July 2024 | 20:43/23:58 | 21:58 | 10/7 | 2/3 | None | No emergence, foraging soprano pipistrelles present |
| BS11 | 15 May 2023 | 21:00/23:26 | 21:26 | 11 | 2/2 | None | No emergence |
| BS11 | 15 May 2024 | 21:12/22:57 | 21:27 | 14/14 | 2/2 | None | No emergence |
| BS11 | 27 August 2024 | 20:03/21:58 | 20:28 | 15/14 | 0/1 | None | No emergence, foraging soprano pipistrelle and *Myotis* species present |
| BS18 | 14 August 2024 | 20:43/22:58 | 20:58 | 13.5/12 | 2/1 | Heavy rain at end of survey | No emergence, foraging soprano pipistrelles present |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| BS20 | 29 August 2024 | 20:02/21:52 | 20:22 | 12/11 | 2/0 | None | No emergence, foraging soprano pipistrelles present |
| BS22 | 30 May 2024 | 21:34/23:49 | 21:49 | 11/10 | 0/0 | None | No emergence |
| BS22 | 14 August 2024 | 20:43/22:58 | 20:58 | 13.5/12 | 2/1 | Heavy rain at end of survey | No emergence, foraging soprano pipistrelles present |
| BS24 | 15 May 2024 | 21:14/23:27 | 21:27 | 14.2/14.7 | 0/0 | Rain at start | 1x soprano pipistrelle emerged at 21:42 |
| BS24 | 14 August 2024 | 20:43/22:58 | 20:58 | 13.5/12 | 2/1 | None | No emergence |
| BS25 | 29 May 2024 | 21:36/23:51 | 21:51 | 15/11 | 1/0 | None | No emergence, foraging *Pipistrelle* species, soprano pipistrelle, *Myotis daubentonii* and *Myotis* species present |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| BT3 | 03 May 2023 | 20:45/23:02 | 21:02 | 13 | 3 | None | No emergence, foraging soprano and common pipistrelle present |
| BT3 | 25 July 2023 | 03:08/05:23 | 05:08 | 12 | 4/5 | None | 1x *Myotis* species emerged, foraging soprano pipistrelle and *Myotis* species, present |
| BT4 | 02 August 2023 | 21:11/23:26 | 21:26 | 9 | 2 | None | No emergence, foraging soprano pipistrelle, pipistrelle species, common pipistrelle and *Myotis* species present |
| BT4 | 08 September 2023 | 04:36/06:51 | 06:36 | 18 | 0 | None | No emergence, foraging soprano pipistrelle, Pipistrelle species, Brown long-eared bat, |

| Feature | Date | Start/End time | Sunset time | Start/End Temperature (°C) | Start/End Wind speed (Beaufort) | Rain | Results |
|---|---|---|---|---|---|---|---|
| | | | | | | | unknown species, *Myotis* species |
| BT4 | 30 May 2024 | 21:38/23:53 | 21:53 | 12/10 | 2/0 | None | No emergence, foraging soprano pipistrelle, common pipistrelle, *Myotis* species, present |

# Annex 11.11.D. Automated Static Detector Survey Locations

**Table A11-11.10 – Automated Static Deployment Locations (see Volume 3, Figure 11-11c: Automated Static Detector Results (May – September 2023)**

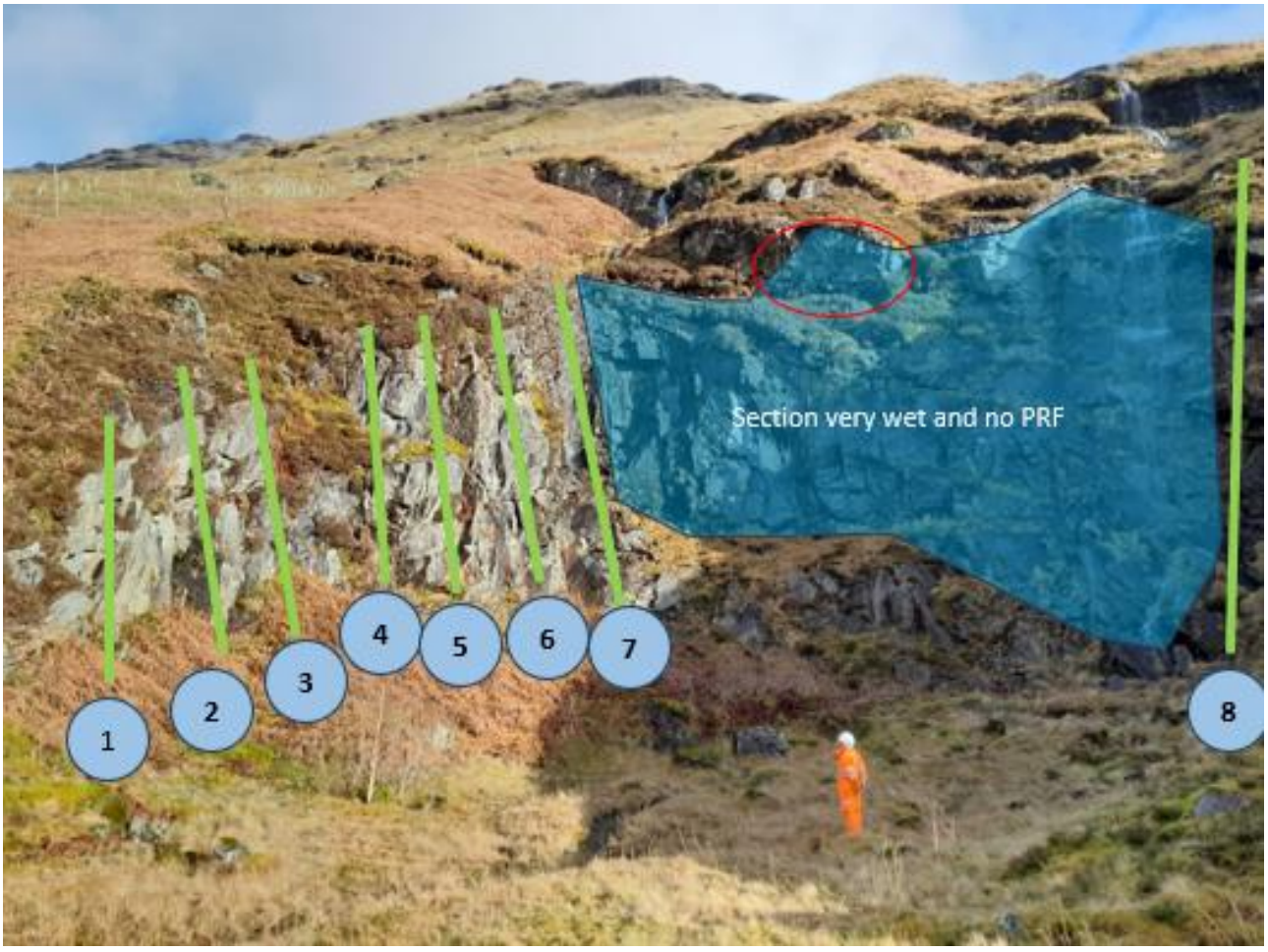
| Structure Reference | Grid Reference | Habitat Type | Deployment Periods (May - September 2023) |
|---|---|---|---|
| BC1 'The Cave Complex' | NN 23559 07311 | Grassland; detector placed with cave in a rocky outcrop | 24 May 2023 – 13 July 2023 |
| BC2 'The Cave Complex' | NN 23540 07342 | Grassland; detector placed within cave in a rocky outcrop | 24 May 2023 - 13 July 2023 |
| Location 1 | NN 22970 07520 | Grassland adjacent Loch Restil | Deployment 1: 27 June 2023 - 02 July 2023<br>Deployment 2: 13 July 2023 - 18 July 2023<br>Deployment 3: 01 September 2023 - 06 September 2023 |

| | | | |
|---|---|---|---|
| Location 2 | NN 23440 07300 | Grassland with rocky outcrops | Deployment 1: 27 June 2023 - 2 July 2023<br>Deployment 2: 13 July 2023 - 18 July 2023<br>Deployment 3: 1 September 2023 - 6 September 2023 |
| Location 3 | NN 24140 06090 (Deployment 1 and 2)<br>NN 24230 06030 (Deployment 3) | Mixed plantation woodland and scrub | Deployment 1: 27 June 2023 - 2 July 2023<br>Deployment 2: 13 July 2023 - 18 July 2023<br>Deployment 3: 1 September 2023 - 6 September 2023 |
| Location 4 | NN 24280 06070 | Mixed plantation woodland and scrub adjacent water course | Deployment 1: 27 June 2023 - 2 July 2023<br>Deployment 2: 26 August 2023 - 31 August 2023<br>Deployment 3: 1 September 2023 - 6 September 2023 |
| Location 5 | NN 24308 06093 | Mixed plantation woodland and scrub adjacent Cree Water | Deployment 1: 27 June 2023 - 2 July 2023<br>Deployment 2: 13 July 2023 - 18 July 2023<br>Deployment 3: 1 September 2023 - 6 September 2023 |

Location 6

# Annex 11.11.E. Rope Access Survey Results

## 11-11.E.1. Rope Access Survey Results (a former Quarry)




**Overview of BS24 (a former quarry) with Rope Access References**

**Table A11-11.11 - BS24 Rope Access Survey Results (former Quarry)**

| Location Reference | Description | Photograph and PRF |
|---|---|---|
| 1 | Far western end of former quarry consisting of slightly overhanging rock with dilated blast joints. No evidence of roosting bats and one suitable PRF:<br>PRF1 – Diagonal c. 15° split in face near top. Cavity c. 90 cm in length, 2.5 cm width and extending 30 cm into rock<br>Bat Roost Suitability (BRS): Moderate | Refer to Photograph 1, A11-11.E.3 |
| 2 | Western end of former quarry consisting of slightly overhanging rock with dilated blast joints. No evidence of roosting bats and one suitable PRF:<br>PRF 2 – Diagonal c. 20° split in face above iron-stained rock. Cavity c. 120 cm in length, 2 cm width and extending 15-20 cm into rock<br>BRS: Low | Refer to Photograph 2, A11-11.E.3 |
| 3 | Western end of former quarry consisting of slightly overhanging rock with dilated blast joints. No evidence of roosting bats and two suitable PRF:<br>PRF 3 – Diagonal c. 5° - 45° split in face near top. Cavity c. 60 cm in length, 2.5 cm width and extending >50 cm into rock to complex rubble void | Refer to Photograph 3 and 4, A11-11.E.3 |

| Location Reference | Description | Photograph and PRF |
|---|---|---|
| | BRS: Moderate<br>PRF 4 – Minor fractures in rock below PRF 2 provide small crevices<br>BRS: Low | |
| 4 | Obvious fracture noted from ground level at top of face found to be very wet and shallow on inspection<br>BRS: Unsuitable | Refer to Photograph 5 and 6, A11-11.E.3 |
| 5 | South-east facing mid-section of former quarry consisting of almost vertical rock with dilated blast joints. No evidence of roosting bats and two suitable PRF. Vertical fractures extend into rock >30 cm but exposed and damp and unsuitable for roosting bats<br>PRF 5 - Minor shallow fractures amongst loosely held rock at top of face<br>BRS: Negligible | |
| 6 | South-east facing mid-section of former quarry consisting of almost vertical rock with dilated blast joints. No evidence of roosting bats and two suitable PRF. Joints in lower face damp with loose unstable rock | Refer to Photograph 8, A11-11.E.3 |

| Location Reference | Description | Photograph and PRF |
|---|---|---|
| | PRF 6 – Diagonal c. 5°split in face near top. Cavity c. 110 cm in length, 2.5 cm width and extending >35 cm into rock<br>BRS: Moderate | |
| 7 | South-east facing mid-section of former quarry consisting of almost vertical rock with dilated blast joints. No evidence of roosting bats and one suitable PRF. Joints in lower face damp with loose unstable rock, unsuitable for roosting bats<br>PRF 7 – Location shown in Abseil ref. 6 photograph above. Large joints to right hand side of rowan extending >100 cm into rock although rather open and exposed<br>BRS: Low | Refer to Photograph 9 and 10, A11-11.E.3 |
| 8 | Eastern end of former quarry consisting of stepped exposures with vegetation adjacent to waterfall. No evidence of roosting bats and one suitable PRF:<br>PRF 11 – Overhanging rock mid-face with joint at top. Cavity c. 100 cm in length, 1 cm width and extending c. 15-20 cm into rock<br>BRS: Low | Refer to Photograph 11, A11-11.E.3 |

## 11-11.E.2. Rope Access Survey Results ('the Cave Complex')

**Table A11-11.12 - Access Survey Results**

| Feature | Grid Reference | Description | Photograph(s) |
|---|---|---|---|
| BC2 - Main Cave Area Overview | NN 223540 707335 | Caves/voids formed by large rock slump with open joints and boulder chokes. Several entrances to main void (circled in red on photograph opposite) with additional separate voids downslope to south-east | Refer to Photograph 12, A11-11.E.3 |
| BC1- Entrance 1 | NN 223536 707340 | From entrance 1 with overhanging blocks void extends down into hillside circa 10 m, extends up on steep angle for circa 10 m to entrances 3 and 4 and joins cleft from entrance 2 via boulder choke on right hand side. Cavity at base of void into hillside with location of hibernating brown long-eared bat recorded on 23/02/2024. Several droppings recorded beneath roost location on 23/05/2024. High suitability for roosting bats including for hibernation/winter use, throughout voids with dry areas of rock and numerous crevices/cracks | Refer to Photograph 13 and 14, A11-11.E.3 |

| | | | |
|---|---|---|---|
| Entrance 2 | NN 223543 707331 | Rope access required to access down into cleft which extends via choked boulders circa 16 m into hillside and down circa 8 m. Numerous (approximately 50) bat droppings found on rock walls and floor at this survey point (see photograph). Void continues from furthest accessed point down approximately 5m round and > 5 m out of sight round corner of block on right hand side. Considered unsafe to access with loose choked boulders. High suitability for roosting bats including for hibernation/winter use, throughout voids with dry areas of rock and numerous crevices/cracks | Refer to Photograph 15, 16 and 17, A11-11.E.3 |
| Entrance 3 | NN 223552 707332 | Void from entrance drops sharply to meet void from entrance 1 | Refer to Photograph 18, A11-11.E.3 |
| Entrance 4 | NN 223547 707335 | Two connected entrances drop sharply to meet void from entrance 1 | Refer to Photograph 19, A11-11.E.3 |

| | | | |
|---|---|---|---|
| Entrance 5 | NN 223551 707328 | Narrow void from entrance beneath rowan drops to north-west to meet void from entrance 2 approximately 6m into hillside | Refer to Photograph 20, A11-11.E.3 |
| Separate cave/void | NN 223553 707315 | Void beneath huge boulder extends into hillside >5m and >3m down and 3 m up. Dry areas within provide moderate suitability for roosting bats | Refer to Photograph 21, A11-11.E.3 |
| Separate caves/voids | NN 223554 707300 | Void extending into hillside >5m rather open and exposed but with some crevices with moderate suitability for roosting bats. Location of static detector<br><br>Upper void approximately 5m above potentially connected to main (detector) void and extends into hillside >5m and >5m vertically. Rather damp within but with some crevices with moderate suitability for roosting bats | Refer to Photograph 22 and 23, A11-11.E.3 |
| Separate cave/void | NN 223552 707297 | Cleft extends into hillside >13m and >7m vertically. Additional narrow cleft behind slipped rock mass extends >8m into hillside out of sight and too narrow to access. Dry areas within voids | Refer to Photograph 24, A11-11.E.3 |

| | | | |
|---|---|---|---|
| | | have high suitability for roosting bats, including for hibernation/winter use | |
| Separate cave/void | NN 223540 707287 | Too narrow to access. Cleft extends into hillside >7m and >7m vertically. Appears dry within with high suitability for roosting bats, including for hibernation/winter use | Refer to Photograph 25, A11-11.E.3 |

# 11-11.E.3. Photographs associated with Rope Access Survey Results (a former Quarry and 'the Cave Complex')

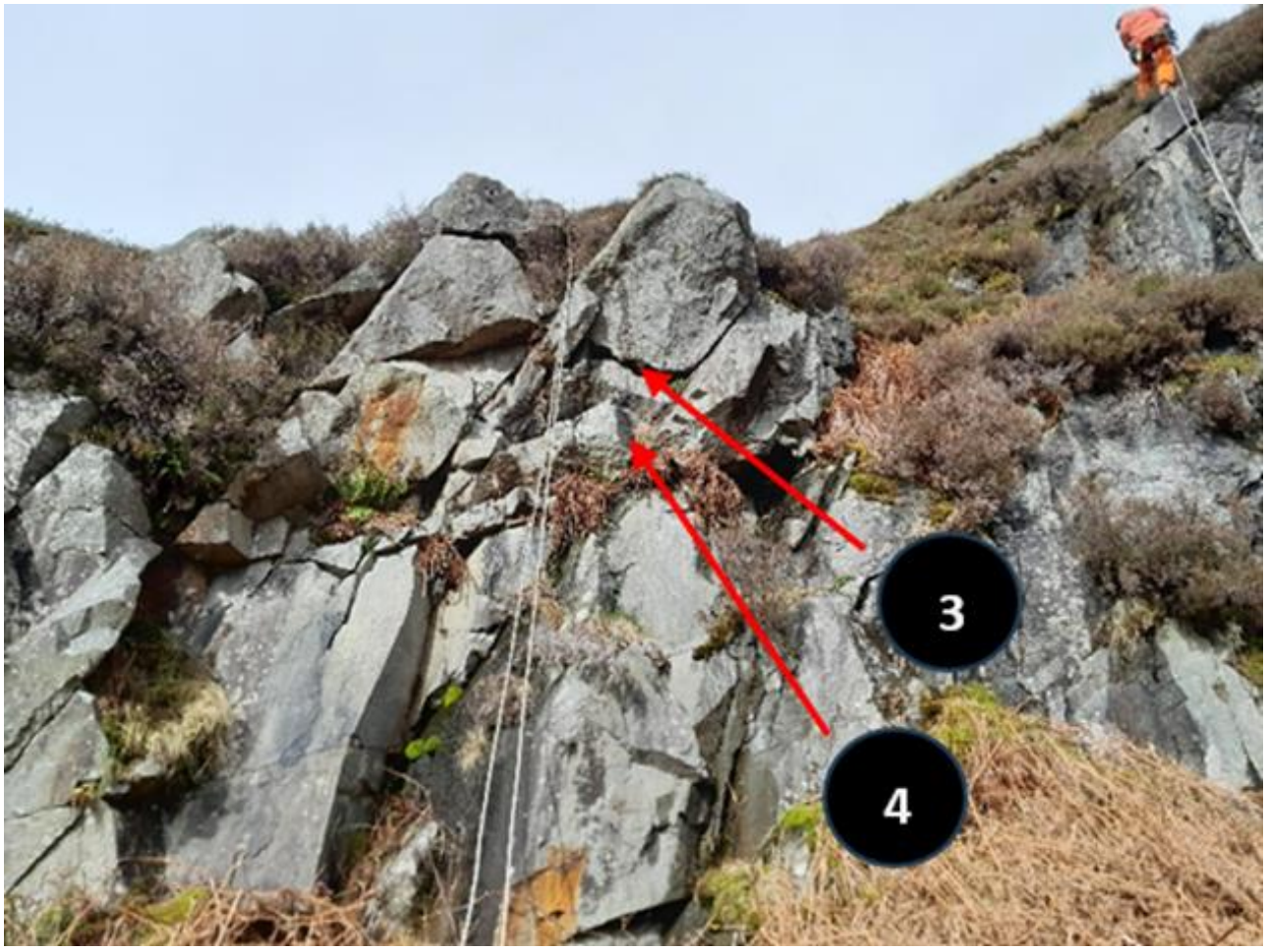
## Photographs associated with Rope Access Survey Results (a former Quarry)

**Photograph 1: This photograph shows the far western end of the former quarry wall consisting of overhanging rock with dilated blast joints. A red arrow with an associated circular label point to the location of PRF1.**

**Photograph 2: The photograph shows the western end of the former quarry consisting of slightly overhanging rock with dilated blast joints. A red arrow and the associated circular label point to the location of PRF2.**

**Photograph 3: This photograph captures a close-up view of PRF 3. The photograph shows a deep crevice/cleft present between the rock face. Damp conditions and moisture are observed sipping out of the rock crack.**

**Photograph 4: The photograph shows the western end of the former quarry consisting of slightly overhanging rock with dilated blast joints. Two red arrows with the associated circular labels point to the location of PRF 3 and 4.**

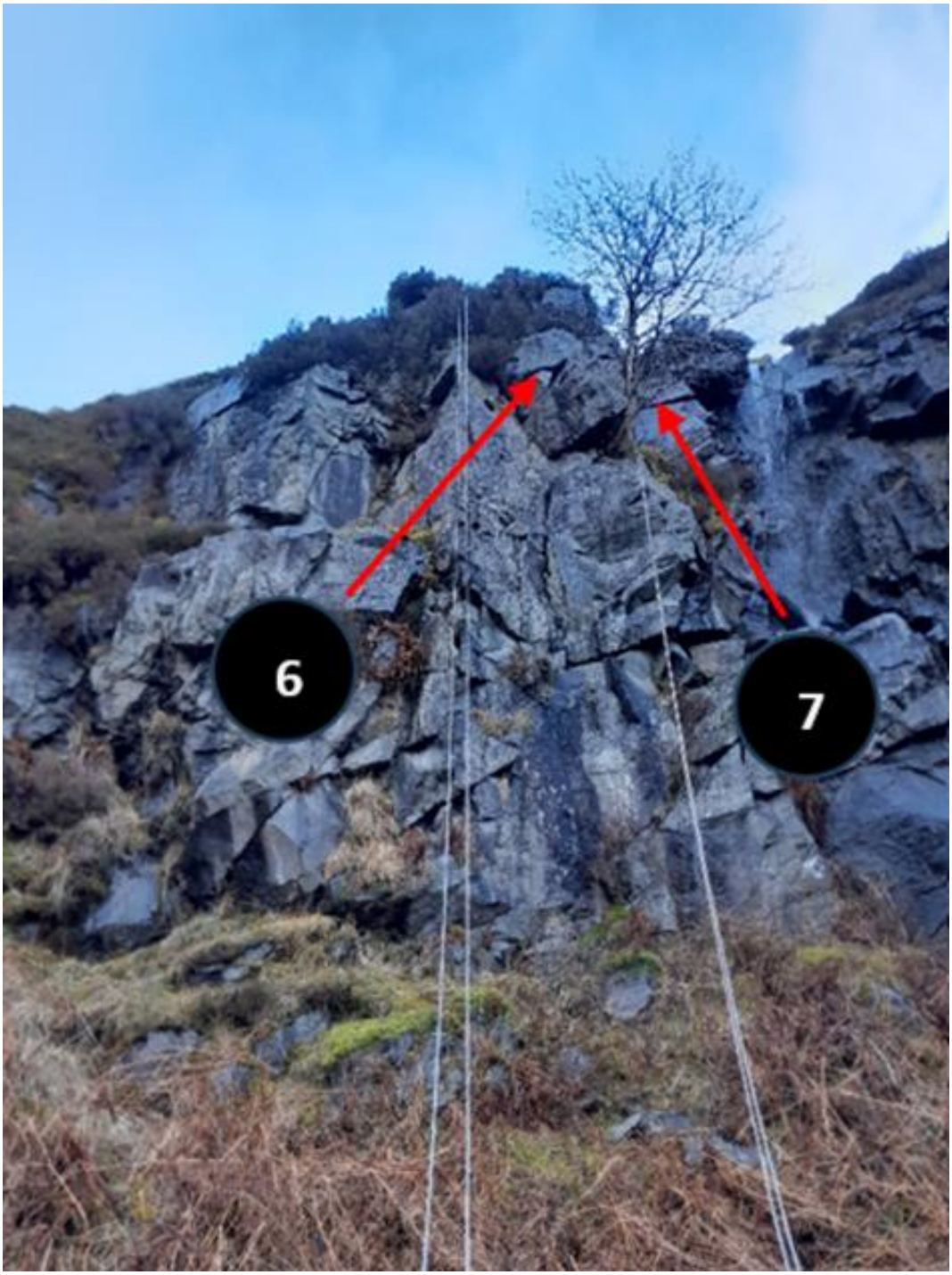


**Photograph 5: The photograph shows the steep and rocky quarry wall with a surveyor hanging with a rope over the edge to investigate the PRF's.**

**Photograph 6: The photograph shows the South-east facing mid-section of former quarry consisting of almost vertical rock with dilated blast joints. A red arrow with an associated circular label point to the location of PRF5.**

**Photograph 7: The photograph captures a close-up view of PRF 6. The photograph shows a long horizontal cleft and a vertical joint present on the rock face.**

**Photograph 8: The photograph shows the south-east facing mid-section of the former quarry consisting of vertical rock with dilated blast joints. Two red arrows with the associated circular labels point to the location of PRF 6 and 7.**



**Photograph 9: The photograph captures a close-up view of PRF 7. The photograph shows a deep V-shaped crack formation present on the rock face of the quarry wall.**

**Photograph 10: The photograph shows a close-up view of the joints present in the lower rock face. Damp conditions with loose unstable rocks can be observed.**

**Photograph 11: The photograph shows the far eastern end of the former quarry wall, consisting of stepped exposures with vegetation adjacent to the waterfall. A red arrow with an associated circular label point to the location of PRF8, present under the overhanging rock near the top of the quarry wall.**

## Photographs associated with Rope Access Survey Results ('the Cave Complex')

**Photograph 12: The photograph shows the location of the main cave located on the hillside above a road. A red marker circles the location of the cave entrance from a distance.**

**Photograph 13: The photograph shows the entrance point of a void surrounded by overhanging rocks, moss and fen vegetation.**

**Photograph 14: The photograph shows a natural rock formation creating a cave or void with rugged rocks. Damp areas can be observed on some of the rock surface outside the void entrance.**

**Photograph 15: The photograph shows a wide cave entrance behind a large boulder, and under a coniferous tree. The surrounding ground in front of the cave entrance appears vegetated with grass, moss and fern species.**

**Photograph 16: The photograph shows the internal area of the void extending in a narrow pathway and consisting of boulder walls. A surveyor wearing high visibility clothing can be seen in the depth of the cave.**

**Photograph 17: The photograph captures three bat droppings present on the rock surface. Three red arrows point on the exact location of the droppings.**

**Photograph 18: This photograph shows the entrance point of a void. The opening drops down sharply into deep ground. The ground surface of the entrance point is covered with moss, bracken and fern species.**

**Photograph 19: The photograph shows two void entrances on a densely vegetated ground consisting of ferns, bracken and moss species.**

**Photograph 20: The photograph shows a void present beneath a large boulder, extending into the hillside. The entrance of the void is covered by bracken vegetation.**

**Photograph 21: The photograph shows a void present beneath a large boulder, extending into the hillside. The entrance of the void is covered by bracken vegetation.**

**Photograph 22: The photograph shows a deep void extending into the hillside. The rocks surface appears to be dry with some crevices present.**

**Photograph 23: The photograph shows a deep and wide void extending into the hillside. Damp conditions are observed on the rock surface.**

**Photograph 24: The photograph shows a close-up view of a deep cleft that extends into the hillside. The rocks appear to be dry with some vegetation creeping through the right rock wall.**

**Photograph 25: The photograph shows a close-up view of a deep narrow cleft. The rocks appear to be dry with some vegetation creeping through the gap.**

# Annex 11.11.F. Bat Activity Survey Results 2022 - 2024

**Table A11-11.13 – Bat Activity Survey Results 2022-2024**

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB1 | Roost | 2 emergence/ re-entry survey | No roost found | 2 emergence surveys | 2 soprano pipistrelle<br>1 common pipistrelle<br>1 *Myotis* species | 2 emergence surveys | No roost found | Approximately 90m outside the Proposed Scheme, no piling or blasting expected in this area. No further survey necessary |
| BB2 | Roost | 1 emergence survey | 2 soprano pipistrelle | 2 emergence surveys | No roost found | 1 emergence surveys | No roost found | BB2 is directly adjacent to the Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BB3 | Roost | 3 emergence surveys | 2 soprano pipistrelle | No surveys carried out | N/A | 2 emergence surveys | No roost found | BB3 is directly adjacent to the Proposed Scheme |
| BB4 | Roost | 2 endoscope inspections | 1 brown long-eared bat<br>1 common pipistrelle | 2 endoscope inspections, 1 adhoc endoscope inspection | 1 bat (adhoc) | 1 endoscope inspection | No roost found | BB4 is directly adjacent to the Proposed Scheme |
| BB5 | Roost | 2 emergence surveys | 2 soprano pipistrelle | 1 emergence survey | No roost found | 2 emergence surveys | No roost found | Within 20m of Proposed Scheme |
| BB6 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Temporary buildings not found |
| BB7 | High | 1 emergence survey | No roost found | 1 emergence survey and an | Automated detector deployed | No surveys carried out | N/A | Scoped out as over 200m from the Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | automated detector deployed for 21 days. | inside structure for 21 days. No evidence of bats recorded. | | | No further survey necessary |
| BB8 | Roost | 2 emergence surveys | 3 soprano pipistrelle | 2 emergence surveys | 8 soprano pipistrelle | No surveys carried out | N/A | Scoped out as approximately 170m west of the Proposed Scheme |
| BB9 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BB10 | Roost | 1 emergence survey | 1 soprano pipistrelle<br>1 common pipistrelle | 2 emergence surveys | 5 common pipistrelle | No surveys carried out | N/A | Scoped out due to distance. Continued roost use |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | established in 2022 and 2023 |
| BC1 | Roost | No surveys carried out | N/A | No surveys carried out | N/A | 1 inspection | Brown long-eared hibernation roost (1), assumed day roost for small numbers of bats based on droppings found (species unknown). | Rope climbing inspections carried out due to access constraints |
| BC2 | Roost | No surveys carried out | N/A | No surveys carried out | N/A | 1 inspection | Brown long-eared hibernation roost (1), | Rope climbing inspections carried |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | assumed day roost for small numbers of bats based on droppings found (species unknown). | out due to access constraints |
| BS1 | High | 1 inspection | No roost found | 3 emergence surveys | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023. Scoped out by virtue of distance |
| BS2 | Roost | 2 emergence surveys | 1 *Myotis* species | 2 emergence surveys | 1 *Myotis* species | 1 emergence survey | 1 Common pipistrelle | Direct impact to bridge likely. Within Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS3 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out by virtue of distance |
| BS4 | Moderate | 3 emergence surveys | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Loch Lomond Trossachs National Park Sign. Scoped out by virtue of distance |
| BS5 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS6 | Low | No surveys carried out | N/A | 2 emergence surveys | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023 |
| BS7 | Moderate | 2 emergence surveys | No roost found | 2 emergence surveys with | No roost found | No surveys carried out | N/A | Full survey effort completed in 2023 |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | endoscope inspection | | | | |
| BS8 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out |
| BS9 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Under the A83 unsuitable and scoped out |
| BS10 | Moderate | 3 emergence surveys | No roost found | No surveys carried out | N/A | 2 emergence surveys | No roost found | Within Proposed Scheme |
| BS11 | Roost | 1 emergence and 1 re-entry surveys | 1 *Myotis* species | 1 emergence survey | No roost found | 2 emergence surveys | No roost found | Within Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS12 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS13 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS14 | Low/Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance |
| BS15 | Low | 2 emergence surveys | No roost found | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance |
| BS16 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance |
| BS17 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Scoped out by virtue of distance |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS18 | Low | No surveys carried out | N/A | No surveys carried out | N/A | 1 emergence survey | No roost found | Within Proposed Scheme |
| BS19 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BS20 | Low | No surveys carried out | N/A | No surveys carried out | N/A | 2 emergence survey | No roost found | Within Proposed Scheme |
| BS21 | Low | No surveys carried out | N/A | 1 endoscope inspection | No roost found | No surveys carried out | N/A | Scoped out |
| BS22 | Moderate | No surveys carried out | N/A | No surveys carried out | N/A | 2 emergence surveys | No roost found | Within Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BS23 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Dry stone wall. Disproportionate to warrant an emergence |
| BS24 | Moderate | No surveys carried out | N/A | No surveys carried out | N/A | 2 emergence surveys | 1 soprano pipistrelle emergence | Within Proposed Scheme |
| BS25 | Low | No surveys carried out | N/A | No surveys carried out | N/A | 1 emergence survey | No roost found | Within Proposed Scheme |
| BT1 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Not found, assumed felled |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| BT2 | Low | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | Not found, assumed feld |
| BT3 | Roost | 1 emergence and 1 re-entry survey | 17 *Myotis* species, 3 soprano pipistrelle, 1 unidentified bat species | 1 emergence and1 re-entry surveys | 1 *Myotis* species | No surveys carried out | N/A | No direct impact. Scoped out by virtue of distance from the Proposed Scheme |
| BT4 | Roost | No surveys carried out | N/A | 1 emergence and 1 re-entry surveys | No roost found | 1 emergence survey | 1 unidentified bat species (flight pattern and size indicative of a | Within Proposed Scheme |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | P*ipistrellus* species) | |
| BT5 | Roost | No surveys carried out | N/A | 1 inspection | *Pipistrellus* species day roost (1) | No surveys carried out | N/A | Within Proposed Scheme |
| BT6 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Within Proposed Scheme |
| BT7 | Negligible | No surveys carried out | N/A | No surveys carried out | N/A | No surveys carried out | N/A | |
| BT8 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Not surveyed. Scoped out by virtue of distance from the Proposed Scheme |
| BT9 | Low | No surveys carried out | N/A | 1 inspection | No roost found | No surveys carried out | N/A | Not surveyed. Scoped out by virtue |

| Reference | Suitability | 2022 Surveys | 2022 Result | 2023 Surveys | 2023 Results | 2024 Surveys | 2024 Results | 2024 Survey Rationale |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | of distance from the Proposed Scheme |

# Annex 11.11.G.  2023/2024 Roost Locations

**Photograph 1: This photograph shows BB1, roosts are located on the east aspect and are shown in the red boxes below.**

**Photograph 2: This photograph shows BB2, roosts are located on the south aspect and are shown in the red boxes below.**

**Photograph 3: This photograph shows BB3, a roost is located on the south aspect and is shown in the red box below.**

**Photograph 3: This photograph shows BB4, a roost is located on the west face and is shown in the red box below.**

**Photograph 5: This photograph shows BB5, roosts are located on the west aspect and are shown in the red crosses below.**

**Photograph 2: This photograph shows BB8, roosts are located on the south aspect and are shown in the red boxes below.**

**Photograph 3: This photograph shows BB8 from another angle, roosts are located on the northeast aspect and are shown in the red boxes below.**

**Photograph 4: Another photograph of BB8, roosts are located on the south/southwest aspect and are shown in the red boxes below.**

**Photograph 5: This photograph shows BB10, roosts are located on the west aspect and are shown in the red boxes below.**

**Photograph 6: Another photograph of BB10, roosts are located on the southwest aspect and are shown in the red boxes below.**

**Photograph 7: This photograph shows BS2, a roost is located on the northeast aspect and is shown in the red box below.**

**Photograph 8: Another photograph of BS2, a roost is located on the southwest aspect and is shown in the red box below**

**Photograph 9: Another photograph of BS2, a roost is located on the east aspect and is shown in the red box below**

**Photograph 10: This photograph shows BS11, a roost is located on the southwest aspect and is shown in the red circle below.**

**Photograph 11: This photograph shows BS24, a roost is located on the north aspect and is shown in the red circle below.**

**Photograph 12: This photograph shows BT3, a roost location on the east aspect is shown in the red box below.**

**Photograph 13: This photograph shows BT4, a roost location on the south aspect is shown in the red circle below.**

**Photograph 14: This photograph shows BT5, a roost location on the south aspect is shown in the red circle below.**

**Photograph 15: This photograph shows PM5, a rock feature found to contain a bat roost during terrestrial mammal surveys.**

# Annex 11.11.H. Automated Static Detector Survey Results

**Table A11-11.14 – Relative rate of bat activity (pph) recorded during the middle of the night over the entire monitoring period (May – September 2023)**

| Species | 30 minutes before to 60 minutes after sunset | 61 minutes to 120 minutes after sunset | 121 minutes after sunset to 121 before sunrise | 120 minutes to 60 minutes before sunrise | 59 minutes before sunrise to 30 minutes after sunrise | Total |
|---|---|---|---|---|---|---|
| Common pipistrelle | 0.00 | 0.31 | 0.01 | 0.29 | 0.05 | 0.08 |
| Soprano pipistrelle | <0.01 | 0.11 | 0.00 | 0.20 | 0.01 | 0.33 |
| Pipistrelle species | 0.00 | 0.11 | 0.00 | 0.20 | 0.01 | 0.04 |
| *Myotis* species | <0.01 | 0.11 | 0.01 | 0.58 | 0.01 | 0.06 |
| Brown long-eared bat | 0.00 | 0.29 | 0.01 | 0.31 | 0.01 | 0.05 |
| Total | 0.00 | 2.49 | 0.07 | 4.04 | 0.11 | 0.55 |

**Table A11-11-15 – Relative rate of bat activity (pph) per location during monitoring period (May – September 2022-2023). Volume 3, Figure 11-11c: – Automated Static Detector Results (May – September 2023)**

| Species | Location 1 | Location 2 | Location 3 | Location 4 | Location 5 | Total |
|---|---|---|---|---|---|---|
| Common pipistrelle | 0.02 | 0.00 | 0.13 | 0.02 | 0.18 | 0.08 |
| Soprano pipistrelle | 0.37 | 0.02 | 0.68 | 0.09 | 0.31 | 0.33 |
| Pipistrelle species | 0.01 | 0.00 | 0.06 | 0.01 | 0.07 | 0.04 |
| *Myotis* species | 0.09 | 0.01 | 0.09 | 0.04 | 0.08 | 0.06 |
| Brown long-eared bat | 0.00 | 0.00 | 0.05 | 0.09 | 0.06 | 0.05 |
| Total | 0.50 | 0.03 | 1.01 | 0.25 | 0.70 | 0.55 |

# Annex 11.11.I. Feature Distances from Proposed Scheme

| Distance | Ref | Distance to Proposed Scheme Boundary (NO Mitigation Areas) | Roosting Potential |
|---|---|---|---|
| Within Proposed Scheme | BB2 | Falls within the Proposed Scheme | Confirmed |
| Within Proposed Scheme | BS2 | Falls within the Proposed Scheme | Confirmed |
| Within Proposed Scheme | BS3 | Falls within the Proposed Scheme | Negligible |
| Within Proposed Scheme | BS8 | Falls within the Proposed Scheme | Negligible |
| Within Proposed Scheme | BS9 | Falls within the Proposed Scheme | Negligible |
| Within Proposed Scheme | BS10 | Falls within the Proposed Scheme | Moderate |
| Within Proposed Scheme | BS11 | Falls within the Proposed Scheme | Confirmed |
| Within Proposed Scheme | BS12 | Falls within the Proposed Scheme | Negligible |
| Within Proposed Scheme | BS13 | Falls within the Proposed Scheme | Negligible |
| Within Proposed Scheme | BS19 | Falls within the Proposed Scheme | Negligible |

| Distance | Ref | Distance to Proposed Scheme Boundary (NO Mitigation Areas) | Roosting Potential |
|---|---|---|---|
| Within Proposed Scheme | BS20 | Falls within the Proposed Scheme | Low |
| Within Proposed Scheme | BS22 | Falls within the Proposed Scheme | High |
| Within the Proposed Scheme | BS24 | Falls within the Proposed Scheme | Confirmed |
| Within the Proposed Scheme | BS25 | Falls within the Proposed Scheme | Low |
| Within the Proposed Scheme | BT4 | Falls within the Proposed Scheme | Confirmed |
| Within the Proposed Scheme | BT10 | Falls within the Proposed Scheme | Low |
| Within 30m | BB3 | 2.167 | Confirmed |
| Within 30m | BS26 | 2.522 | Low |
| Within 30m | BB4 | 2.858 | Confirmed |
| Within 30m | BS6 | 8.8 | Low |
| Within 30m | BS5 | 10.308 | Negligible |
| Within 30m | BS18 | 11.94 | Low |
| Within 30m | BT7 | 20.158 | Negligible |
| Within 30m | BS7 | 20.165 | Moderate |
| Within 30m | BB5 | 21.123 | Confirmed |
| Within 30m | BB7 | 29.877 | High |

| Distance | Ref | Distance to Proposed Scheme Boundary (NO Mitigation Areas) | Roosting Potential |
|---|---|---|---|
| Within 100m | BS23 | 32.928 | Low |
| Within 100m | Separate cave/void D | 35.0463 | High |
| Within 100m | BS21 | 40.269 | Low |
| Within 100m | Separate cave/void C | 50.6667 | High |
| Within 100m | BT8 | 52.075 | Low |
| Within 100m | Separate caves/voids B | 54.1270 | Moderate |
| Within 100m | The Cave Complex (BC1) | 56.694 | Confirmed |
| Within 100m | The Cave Complex (BC2) | 61.125 | Confirmed |
| Within 100m | Separate cave/void A | 62.7284 | Moderate |
| Within 100m | Main Cave Entrance 1 | 64.6375 | Confirmed |
| Within 100m | Main Cave Entrance 2 | 64.6452 | Confirmed |
| Within 100m | Main Cave Entrance 5 | 69.1232 | Confirmed |
| Within 100m | Main Cave Entrance 4 | 70.2579 | Confirmed |

| Distance | Ref | Distance to Proposed Scheme Boundary (NO Mitigation Areas) | Roosting Potential |
|---|---|---|---|
| Within 100m | Main Cave Entrance 3 | 72.3665 | Confirmed |
| Within 100m | BS17 | 86.988 | Low |
| Within 100m | BT9 | 87.712 | Low |
| Within 100m | BB1 | 89.868 | Confirmed |
| Within 100m | BS1 | 96.46 | High |
| Outside 100m | BT3 | 122.25 | Confirmed |
| Outside 100m | BB8 | 131.844 | Confirmed |
| Outside 100m | Group A | 136.113 | Moderate |
| Outside 100m | BT5 | 160.125 | Confirmed |
| Outside 100m | BB10 | 171.713 | Confirmed |
| Outside 100m | BT6 | 185.33 | Low |
| Outside 100m | BB9 | 206.646 | Low |
| Outside 100m | BS14 | 291.746 | Low |
| Outside 100m | BS16 | 335.943 | Low |
| Outside 100m | BS15 | 1032.186 | Low |
| Outside 100m | BS4 | 1107.039 | Moderate |