



**NORTH LODGE (TO HEATH HOUSE),
WINNOTHDALE,
STAFFORDSHIRE**

BAT SURVEY REPORT

**Prepared for
Farrah Yusuf and Toby Rainthorpe**

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CONTENTS

1. INTRODUCTION

2. METHODOLOGY

- 2.1 Search of Existing Records
- 2.3 Preliminary Roost Assessment
- 2.9 Static Bat Activity Recording
- 2.10 Evening Emergence Surveys
- 2.15 Constraints to the Surveys

3. FINDINGS & INTERPRETATION

- 3.1 Review of Existing Records
- 3.5 Survey Findings
 - Preliminary Roost Assessment
- 3.12 Static Bat Activity Recording
- 3.17 Evening Emergence Surveys
- 3.18 Interpretation

4. RECOMMENDATIONS

5. REFERENCES

PHOTOGRAPHS

FIGURE

- 1 Evidence of Bat Use

APPENDIX

- I Legislation

1. INTRODUCTION

- 1.1 This report has been prepared for Farrah Yusuf and Toby Rainthorpe. It presents the results of bat surveys of North Lodge in Winnothdale, near Tean, Staffordshire. The surveys were carried out during 2023.
- 1.2 Planning permission and Listed Building Consent are being sought from Staffordshire Moorlands District Council for proposed alterations, refurbishment and alterations, including erection of a rear orangery (planning application and LBC references SMD/2023/0446 and SMD/2023/0447).
- 1.3 The building formed the main entrance lodge to Heath House. It was constructed in 1830 and is Grade II listed. It is two-storey, built from dressed sandstone and had a hipped roof clad in slates.
- 1.4 North Lodge sits on the north edge of the estate of Heath House adjacent to Hollington Road and 1km east of Upper Tean. It lies in a rural location and is set amongst a woodland, North Plantation, that extends both sides of Hollington Road. The OS grid reference for the building is SK 0270 3959.
- 1.5 The report describes the methods used for the surveys and any constraints encountered, along with the results of the surveys, including evidence of bats found. The findings are assessed in light of the proposals and recommendations for further survey or action are given where appropriate.
- 1.6 The legislation relating to bats is given in Appendix 1.

2. METHODOLOGY

Search of Existing Records

- 2.1 The local record centre, Staffordshire Ecological Records, was contacted for existing records of bats within 2km of the building.
- 2.2 The results of a record search can help to set a site into the context of its surroundings, as well as provide valuable information on the known presence of bats in the local area.

Preliminary Roost Assessment

- 2.3 A Preliminary Roost Assessment of the building was undertaken on the 6th of July 2023 by Helen Ball and Max Robinson. Helen and Max are licensed by Natural England to survey and handle bats.
- 2.4 An assessment of the building was made in terms of its suitability to support roosting bats. Factors considered included internal conditions, presence of features suitable for use by crevice dwelling and free hanging bats and proximity to foraging habitats/cover.
- 2.5 A description of the building was made, and it was assigned to one of the following categories:
 - Bat roost – evidence of use by bats present. Works affecting the roost would need to be undertaken under a statutory licence from Natural England, with precautionary and mitigation measures implemented as specified by the licence.
 - High Potential – building exhibiting features very suitable for use by roosting bats (such as gaps between tiles and underfelt, gaps below ridge tiles, significant crevices within the walls) and offering optimal roosting opportunity. Often several suitable features will be present. Further survey (usually a minimum of three evening emergence and/or dawn re-entry surveys) would normally be undertaken to establish use by bats and, if confirmed, the type of roost and number of bats present, etc. If no roost is identified, precautionary measures would need to be implemented during works to the building.
 - Moderate Potential – building exhibiting features less suitable for roosting bats (such as superficial gaps within walls, gaps containing debris or cobwebs, limited areas of tiles or generally well-sealed tiling) and offering less roosting opportunity. Suitable roosting opportunity may be limited to a small number of features. Further survey (usually a minimum of two evening emergence and/or dawn re-entry surveys) would normally be undertaken to establish use by bats and, if confirmed, the type of roost and number of bats present, etc. If no roost is identified, precautionary measures would need to be implemented during works to the building.
 - Low/Negligible Potential – building exhibiting features very unlikely to be used for roosting or no features suitable for roosting. In practice, such buildings may have

negligible potential for roosting. Further survey (usually a minimum of a single evening emergence and/or dawn re-entry surveys) would normally be undertaken to establish use by bats and, if confirmed, the type of roost and number of bats present, etc. Precautionary measures may need to be implemented during works to the building, although in some cases no further action would be required.

- 2.6 A detailed visual inspection of the exterior and interior of the building was undertaken. The inspection followed standard methodologies set out in *Bat Surveys for Professional Ecologists – Good Practice Guidelines*, Bat Conservation Trust (Collins, 2016).
- 2.7 Externally, a visual inspection of features such as gaps in the fabric of the building was made for evidence of bat use. Evidence searched for included droppings and staining from fur-oil and urine. The survey was undertaken from the ground and was aided using close-focusing binoculars, an endoscope and a high-powered torch where necessary.
- 2.8 The internal survey focussed on the roof void and followed a similar approach, with a search made for bat droppings, prey residues (such as fly or moth wings) and urine stains, as well as resident bats.

Static Bat Activity Recording

- 2.9 A static bat detector (Anabat Swift) was installed inside the northwest part of the roof void to record bat calls to gain insight on the extent of use of the roof void by bats for roosting and pre-emergence flight. It was installed on the 31st July and recorded continuously until the 11th September 2023 when it was retrieved. The settings of the detector were calibrated to minimise recordings of bats outside the roof void as much as possible (positioning it facing down into the roof void, reducing the sensitivity of the microphone etc.).

Evening Emergence Surveys

- 2.10 Evidence of bat roost was found during the PRA. Three evening emergence surveys were carried out of the building to provide information of the character of the roost.
- 2.11 The surveys were carried out during the evening and commenced approximately 0.5 hours before sunset and finished 1.5 - 2 hours after sunset. The surveys followed standard methodologies set out in *Bat Surveys for Professional Ecologists – Good Practice Guidelines*, Bat Conservation Trust (Collins, 2016). Two surveyors were positioned externally around the building to watch for bats emerging from it.
- 2.12 Bat detectors (Anabat Scout Detectors, Titley Electronics, Australia) were used to identify the presence and identity of bats. Bat calls picked up by the detectors were written onto a compact flash card and, where necessary, analysed on a PC to confirm species. A Canon night vision camera (XA10) and Nightfox Whisker Night Vision Binoculars, coupled with NightFox mounted infra-red lights (XB10) and standard LED infra-red floodlights, were used to aid the surveys.

- 2.13 The surveyors who undertook the surveys (and their Natural England licence numbers, where relevant) are listed below:

Helen Ball: 2018-37791-CLS-CLS (class 3) & 2018-37792-CLS-CLS (class 4)

Max Robinson: 2015-14473-CLS-CLS (class 2)

Carrie Alcock

- 2.14 The table below summarises the weather conditions during each of the evening surveys.

Date	Weather conditions and temperature
31 st July 2023	Dry, moderate breeze (3) but sheltered by adjacent trees, 70% cloud cover, 15.1°C (start) 12.8°C (end). Rain shower before survey commenced.
16 th August 2023	Dry, light air (1), 10% cloud cover, 17.0°C (start) 15.0°C (end)
11 th September 2023	Dry, calm (0), overcast, 19.7°C (start) 16.4°C (end)

Constraints to the Surveys

- 2.15 Half of the roof void (the south-eastern half) could not be entered due to the small size and location of the gaps beside the chimney separating the halves of the roof void. It was viewed through one of the gaps, although visibility was restricted particularly to the ridge area.
- 2.16 The early part of the maternity roosting season was not covered by bat emergence surveys. Spreading surveys across the course of the May to September season increases the chances of identifying a maternity roost (where female bats gather in the summer months to give birth to young) should one be present.
- 2.17 No other constraints were encountered during the surveys. Weather conditions were suitable during all survey visits.

3. SURVEY FINDINGS & INTERPRETATION

Review of Existing Ecological Records

- 3.1 Staffordshire Ecological Record provided information on bats that have been recorded within 2km of the site.
- 3.2 Bats have been recorded on 58 occasions within the search area with four species known to be present: common pipistrelle *Pipistrellus pipistrellus*, brown long-eared *Plecotus auritus*, Daubenton's *Myotis daubentonii* and Natterer's *M. nattereri*. Several of the records are not identified to species.
- 3.3 Fourteen bat roosts are known to be present in the local area. The nearest are a group of four roosts at Lower Tean, 1.3km to the southwest. Three of the roosts are of pipistrelle and two are classified as maternity roosts. The species using the fourth roost is not identified to species. Two pipistrelle maternity roosts have been recorded from Upper Tean 1.2km to the west of the building. A brown long-eared roost is known from a location 1.5km to the west. Five other pipistrelle roosts are grouped just over 1.5km to the west.
- 3.4 The Daubenton's records were made during surveys of the River Tean, 1.7km to the west. The remaining records are of bats in flight either foraging or commuting. Given the suitable habitat in the local area, it is likely that bats are more numerous than the records indicate, and it is likely that they have been under recorded.

Survey Findings

Preliminary Roost Assessment

- 3.5 The building formed the main entrance lodge to Heath House. It was constructed in 1830 and is Grade II listed. The layout of the building is shown on Figure 1 and the Photographs.
- 3.6 The building is detached and two-storey. It is built from dressed sandstone and has a large central chimney. The roof is hipped and clad in slates. The ridge and hips are formed from lead flashing. Gaps are present associated with the ridge, hips and under lead flashing at the chimney base where it meets the roof tiles. The stone walls are well sealed. The soffits are wooden with meshed vents and appear well sealed.
- 3.7 At the rear (northeastern elevation) is a single-storey extension. This is also built from stone and has a part-hipped roof clad in slates. The ridge and hips are formed from lead flashing. A small chimney is present. Occasional gaps are present associated with the ridge.
- 3.8 The roof void is approximately 1.25m in height. It is separated in two by a large centrally placed chimney breast. Gaps either side of the chimney breast provide open flight access for bats between the two halves of the roof void. The roof void floor is lined with rockwool insulation.

- 3.9 The roof is supported by purlins and cross beams. The ridge and hip beams are wooden and clean and free from cobwebs. The roof slates are unlined and the undersides visible. In several places, daylight is visible, such as at the ridge, at the eaves and by the chimney.
- 3.10 Thousands of bat droppings, characteristic of brown long-eared, are present throughout the roof void. The droppings are spread across the floor of the void, with a concentration of c. 2000-3000 droppings located below a joint between the hip and ridge beams in the north-west half of the void. Droppings were also found stuck to the walls of the chimney breast, with small clusters on the floor below. The droppings ranged in age from old to very fresh. Wet urine stains were also present.
- 3.11 A roof void is present in the rear extension. It is c. 1m in height and very heavily cobwebbed throughout. Single purlins are present along each pitch and a narrow ridge board is present. The roof is lined with traditional bitumastic underfelt. Old lath and plaster are stuck to the rafters and is falling away. No daylight is visible, and the void appears well sealed. A small number of mouse droppings were scattered on the floor of the void near the loft access hatch.

Static Bat Activity Recording

- 3.12 The recordings of the static detector installed within the roof void cover the period from 31/07/23 to 01/09/23. Recordings of bat activity were made on each night and, although many are from external sources, many more are from within the roof void and are those of brown long-eared.
- 3.13 Bat activity within the roof void was relatively high for the first seven days/nights of installation (31/07-06/08), with the number of files recorded per night between 125 to 1578, totalling 4592 individual recordings with an average count of 656 per approximate 24-hour period. From then on activity takes a very marked drop with the next 24-hour period seeing a drop to 33 recordings only. On occasions the number of recordings increases with a maximum of 349 reached on the 18/08. However, the total recordings for the remaining 26 days/nights were 3209 with an average of recordings per 24-hour period of 123.
- 3.14 In addition to the above, in the first seven days/nights of recording, there was a high level of activity recorded throughout each 24-hour period, indicating bats were active at times during the day as well as night. Many the recordings are of social calls.
- 3.15 The findings are consistent with the emergence survey results in that greater numbers of brown long-eared were present during the July survey compared to the latter surveys in August and September.
- 3.16 The recordings show that bats were active during the day and night and were communicating via social calls. This indicates that several bats were present and supports the presence of a maternity roost. Activity including social calling from higher numbers of bats including young would be expected at different times within any 24-hour period in a maternity roost.

Evening Emergence Surveys

3.17 The table below summaries the survey findings. Please also refer to the Figure.

Date	Findings
31 st July 2023	Six brown long-eared bats emerged during the survey. The first five bats emerged between 21:14 and 21:38 from a gap below the lead flashing of the ridge adjacent to the chimney (southeast side of chimney). All the bats flew directly westwards towards the adjacent trees. A brown long-eared emerged at 21:42 from below the ridge close to where it meets the hip on the southwest side of the building.
16 th August 2023	A common pipistrelle emerged from below the ridge at 21:02. At 20:48, a brown long-eared emerged from a gap below the northern roof hip. At 21:10, a brown long-eared emerged from the ridge gap to the south-west of the chimney. On emergence, all bats flew eastwards towards the trees.
11 th September 2023	Two bats emerged. A common pipistrelle emerged from the ridge at 19:50, with a brown long-eared emerging at 19.56.
General activity	Extensive activity by common pipistrelle and noctule <i>Nyctalus noctula</i> (a principally tree roosting species) foraging in the vicinity of the building and overhead throughout the first survey.

	Brown long-eared bats were active during the second and third surveys, foraging low down over the rear garden. Activity by foraging common pipistrelles was frequent throughout these surveys.
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Interpretation

- 3.18 The surveys have confirmed that the building is used by brown long-eared as a maternity roost and by common pipistrelle for day roosting.
- 3.19 The building supports a small maternity roost of brown long-eared bats. Six brown long-eared bats emerged during the first evening survey at the end of July. The static detector in the roof void shows brown long-eared social calls and activity in the roof void that evening and night. The activity recorded may have been from bats that returned to roost following completion of the emergence survey but could equally be from bats that hadn't emerged including potentially non-volant young (not yet able to fly).
- 3.20 Low numbers of brown long-eared bats were recorded during the August and September emergence surveys, and this is mirrored by a decline in bat activity within the roof void recorded by the static detector.
- 3.21 Brown long-eared bats can form small maternity roosts. They are often faithful to their maternity roosting sites. However, they also make use of 'satellite' roosts where some females and young bats reside for part of the maternity season. The species can make use of more than one maternity roost during the season and certainly from year to year. The survey findings indicate that the building is used by a small nursery cluster (or by part of a larger nursery cluster) that, during 2023, made use of the building during July (and perhaps earlier in the maternity roosting season) but moved to another roost site in the latter part of the maternity season.
- 3.22 Smaller numbers of brown long-eared bats were present during August and September. This may have been the 'tail-end' of the maternity roost or non-breeding individuals using the building for day roosting. Common pipistrelles also use of the building for day roosting.
- 3.23 There is the potential the building is used bat bats throughout the year, although the roof void is likely poorly buffered from external temperatures given the slates are unlined.
- 3.24 The building is surrounded by high quality foraging habitat for bats, with mature trees growing close to the building providing cover and shelter for bats commuting to and from their roosts.

4. RECOMMENDATIONS

- 4.1 Brown long-eared and common pipistrelles use the building for roosting. In view of the legal protection afforded to bats (see Appendix I), a statutory European Protected Species (EPS) development licence would need to be sought from Natural England to undertake works that would affect bats and their roost sites.
- 4.2 In order to issue a licence, Natural England require detailed and up-to-date information about the status of bat roosts and bat use of the building. In addition, a commitment to mitigation and compensation measures where applicable would be necessary and any consents for the work would need to be in place.
- 4.3 In order to obtain a licence from Natural England, the following three tests need to be satisfied:
- there is no satisfactory alternative;
 - the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range; and
 - the action authorised preserved public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- 4.4 As part of licensing, proposals need to incorporate bat mitigation and compensation measures (replacement roosting provision) to meet Natural England's minimum requirements. Replacement and compensatory roosting provision would need to be included on the architect drawings.
- 4.5 The proposed design is shown on the drawings Proposed Elevations (STHH.02-DR-2200-3P-4-ProposedElevations) and Proposed Floor Plans and Proposed Floor Plans (STHH.02-DR-2000-3P-4-ProposedFloorPlans) prepared by Donald Insall Associates. Changes to design have been made meaning the proposals would not involve conversion of the roof voids as habitable or usable space. This would ensure the main roof void would be retained on a like for-like basis and continue to be available for brown long-eared bats to use for roosting post development. In addition, roosting and access provision for bats would be made into the roof void in the rear (single storey) section of the building. This will help to off-set any impacts associated with a small reduction in space in the main roof void due to the inclusion of two sun pipes. The rear roof void is approximately 900mm high by 2700 in length and would provide additional roosting provision.) prepared by Donald Insall Associates.
- 4.6 Changes to the development design have also been made to ensure the re-roofing and re-insulation are compatible for use of the roof voids by brown long-eared bats. The roof voids should provide attractive roosting opportunities for the nursery cluster given the inclusion of traditional bitumastic (1F) underfelt and roof voids that will be sealed and draught-free resulting in secure and warm (in summer) roosting environments. In addition:

- 4.7 Replacement roosting provision for day roosting common pipistrelle will consist of four bat boxes installed on mature trees to the north of the building. Woodcrete (or similar) boxes suitable for use by pipistrelle bats should be used (not wooden). Boxes would be best installed at least 3m above ground, in an uncluttered location on an aspect that does not face south.
- 4.8 Precautionary working practices would need to be put in place during works according to the licence conditions. All personnel undertaking the work would need to be made aware of these requirements and follow the advice below. Licensable activities would need to be supervised by the licensed ecologist.
- 4.9 There would be a need for timing restrictions when certain works (such as works affecting the roof and roof void) could take place to reduce impacts on bats. Works affecting bats and their roosts would need to be timed to avoid the maternity roosting period, which runs from 1st May to 30th September, as well as during the winter months when bats are hibernating and are vulnerable to disturbance.
- 4.10 Any external lighting installed as part of the proposals on or in the vicinity of the building, in particular at roost entry points and along flight lines used by bats, would need to be limited to ensure these areas remained dark. The use of low lux intensity lighting coupled with low level designs, possibly with timers or motion detectors, would help to reduce light spill into these areas.
- 4.11 The mature trees in the vicinity of the building provide cover and shelter to bats commuting to and from the roosts in the building. Where possible, it is recommended the trees are therefore retained as part of the proposals (allowing for any tree safety requirements).

5. REFERENCES

Collins, J. (ed). (2016). *Bat Surveys for Professional Ecologists – Good Practice Guidelines*. 3rd Edition. Bat Conservation Trust, London.

PHOTOGRAPHS



1. North Lodge – southern and western elevations



2. North Lodge – northern and eastern elevations including rear extension



3. One of roost access points – southwest of building



4. Main access point for bats below the ridge, to southeast of chimney



5. Main roof void (northwestern half)

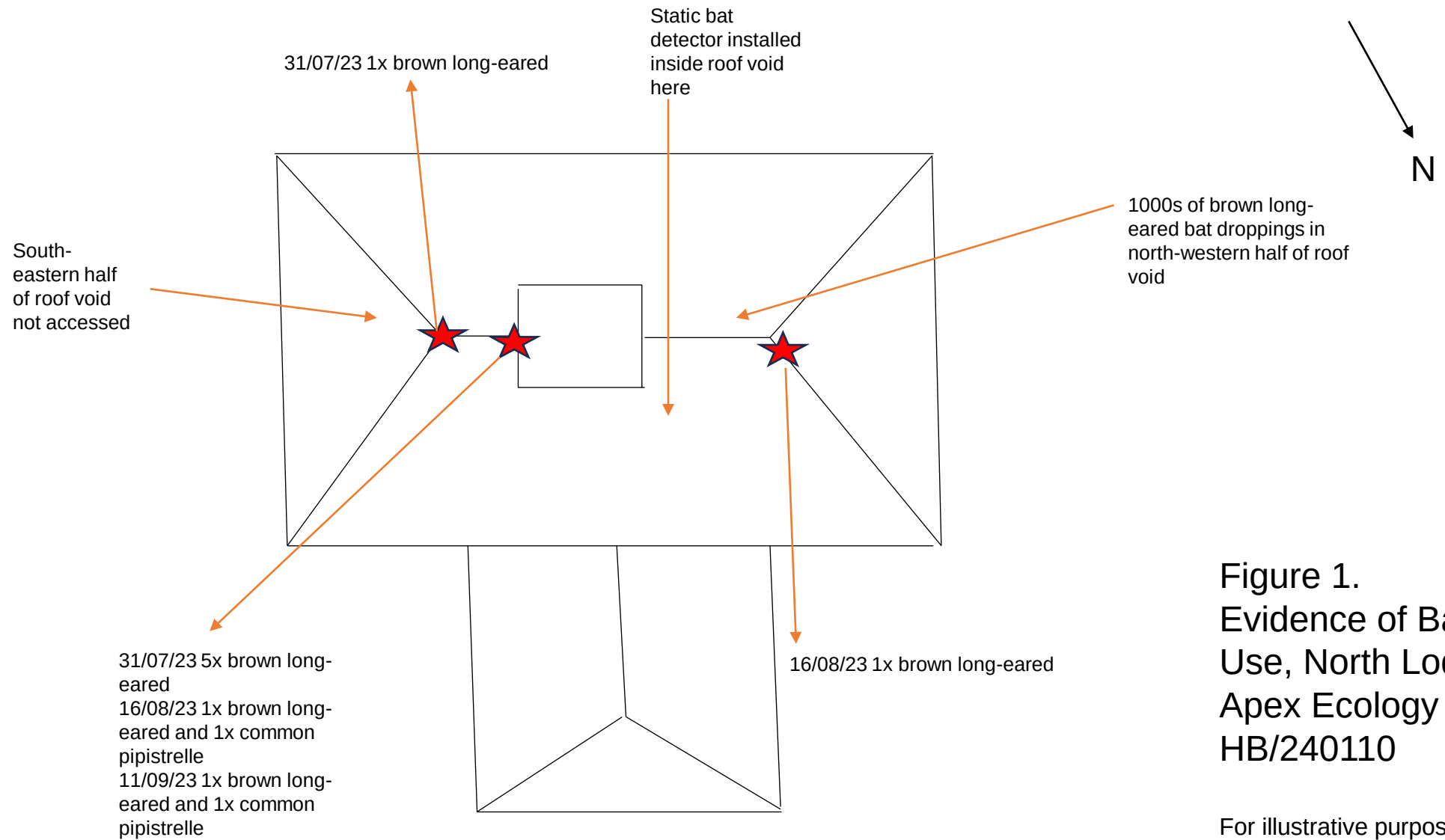


Figure 1.
Evidence of Bat
Use, North Lodge
Apex Ecology Ltd
HB/240110

For illustrative purposes only.
Not to scale.

APPENDIX I - LEGISLATION

The information below is intended only as guidance to the legislation relating to bats and relates solely to England and does not purport to provide legal advice. It is recommended that the legislative documents be referred to for the full legal wording and the services of a relevant specialist sought where legal advice is required.

There are seventeen species of bat that breed in the UK; some are very rare whilst others are widespread. However, because the populations of most species have declined in past decades, all British bats have been protected by law.

Bats are protected in England under European Legislation via the Conservation (Natural Habitats and Wild Flora and Fauna (92/43/EEC)) or 'The Habitats Directive'. The Directive is transposed into UK law via the Conservation of Habitats and Species Regulations 2017 (known as the Habitats Regulations). Due to their inclusion on Schedule 2 of the Habitats Regulations, bats are considered 'European Protected Species'.

In summary, this legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat;
- damage or destroy a breeding site or resting place of any bat;
- possess a bat (alive or dead) or any part of a bat.

Disturbance of bats includes in particular any disturbance which is likely:

(a) to impair their ability:

- (i) to survive, to breed or reproduce, or to rear or nurture their young; or
- (ii) to hibernate or migrate; or

(b) to affect the local distribution or abundance of the species to which they belong.

Bats are also protected under the Wildlife and Countryside Act 1981 (as amended), which has also been amended by the Countryside and Rights of Way (CROW) Act, 2000.

In summary, this legislation makes it an offence to:

- intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection;
- intentionally or recklessly obstruct access to any structure or place which any bat uses for shelter or protection.

NERC ACT AND BIODIVERSITY

A number of UK habitats and species are also included on the list of habitats and species which are of principal importance for the conservation of biodiversity in England as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act. The NERC Act came into force on 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of NERC Act to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and subtidal sands and gravels.

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the Hen Harrier has also been included on the list because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England. In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

The impact that this legislation has on the Planning system is also outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their Impact within the Planning System. This states:

The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult English Nature [now Natural England] before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned.