Sorrel Bank, Wortley

Nocturnal Bat Survey Report

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1. Summary

1.1.1 Nocturnal bat surveys were commissioned by Adrian Want to support a planning application for the demolition of an existing property and the construction of two new dwellings at Sorrel Bank, Wortley. Middleton Bell Ecology was instructed to undertake surveys following a prior assessment by Arbtech, which had identified moderate potential for bats to roost within the building.

1.1.2 The property comprised a single residential building located near the centre of Wortley, South Yorkshire. The surrounding environment included residential gardens, a school, large vegetable garden, with mature trees and an area of broadleaved woodland nearby. The local habitat was considered to offer good opportunities for foraging and commuting bats due to the presence of varied vegetation and minimal artificial lighting.

1.1.3 Two common pipistrelles were recorded emerging from the building on each of the two dusk surveys. Roosts were identified at the eastern gable and the southeast corner of the building. These were assessed to be summer day roosts. Additional species recorded in flight included soprano pipistrelle, brown long-eared bat, and a *Myotis* species.

1.1.4 As the proposed development will result in the loss of two confirmed bat roosts, a bat mitigation licence from Natural England will be required prior to demolition. Mitigation measures will include a supervised soft strip of roof features, installation of four integrated bat boxes across the two new dwellings, use of bat-safe roofing membranes, and a sensitive lighting design to maintain dark corridors for wildlife. Works should avoid the core hibernation period (December to February) as a precaution.

1.1.5 This report will remain valid for 24 months from the last survey date (June 2025). If work has not commenced by this time, Middleton Bell Ecology should be contacted to assess the need for updated survey work.

2. Introduction

2.1.1 A Preliminary Roost Assessment of Sorrel Bank, Wortley was undertaken by Arbtech (Arbtech, 2024). The survey was undertaken to inform a planning application to demolish the existing building and construct two new dwellings within the site.

2.1.2 The Preliminary Roost Assessment identified that the building had moderate suitability to support roosting bats. The report recommended that the building was subject to two nocturnal bat surveys.

2.1.3 The undertaking of the nocturnal surveys was commissioned by the client Adrian Want on 12th March 2025. This report covers the results of the nocturnal surveys and should be read in conjunction with the Preliminary Roost Assessment report undertaken by Arbtech.

2.1.4 The site was located near the centre of the village of Wortley in South Yorkshire.

2.1.5 The legislative context to the survey and assessment reported here is included in Appendix 1.

3. Habitat Assessment

3.1.1 The surrounding area comprised other houses and gardens to the north and west, the village school to the east, and a large vegetable garden to the south. An area of broadleaved woodland associated with Wortley Hall extended from the site boundary to the east and northeast (Plate 1 and Figure 1).

Plate 1. Sorrel Bank and the surrounding area, viewed from the northwest



3.1.2 The habitat in the area was considered to be good for bats. The abundance and variety of bat species in the area was therefore considered likely to be above average with light sensitive species likely to be present.

3.1.3 Table 1 summarises the habitats present within, and adjacent to the site.

Table 1. Location and habitat table

Name and address: Sorrel Bank, Park Avenue, Wortley, S35 7DR			
OS Grid Ref. SK 30886 99373		Altitude. 221 m	
Local Planning Authority: Barnsley Metropolitan Borough Council			
Features on site and adjacent to site			
Feature	On site	Adjacent	Comments
Buildings	✔	✔	Other dwellings.
Watercourse bordered by trees			None.
Standing water			The nearest pond was within the grounds of Wortley Hall (c. 220 m east)
Bridges tunnels and culverts			None.
Trees		✔	Mature trees present in the adjacent gardens.
Woodland		✔	A small woodland present adjacent to the northeast corner of the site.
Grassland	✔	✔	Lawns within and adjacent to the site.

Figure 1. Site location, outlined red



3.2 Aims

3.2.1 The ecology work aimed to determine the likely current presence or absence of roosting bats and, if present, the roost locations, access points, species present, level of use and the importance of nearby landscape features.

4. Methodology

4.1 Field Survey

Nocturnal Survey

4.1.1 The nocturnal bat survey comprised dusk emergence surveys completed on 21st May 2025, and 16th June 2025. The following personnel conducted the nocturnal surveys and were equipped with Wildlife Acoustics Echo Meter Touch bat detectors and tablet recorders:

- Greg Slack (MCIEEM, Natural England Bat (WML-A34-Level 4, licence number: 2016-25236-CLS-CLS); and
- Carl Dixon.

4.1.2 Three surveyor positions were covered during surveys with unsupervised cameras covering the one or two positions that weren't manned. The night vision equipment used and surveyor coverage is shown in Table 2. The surveyor locations are shown on Figure 2.

Figure 2. Surveyor Positions



Table 2. Surveyors and night vision equipment used during the surveys

Surveyor Position	21st May 2025	16th June 2025
1	Unsupervised Guide TK612 Gen2 Thermal Imaging Monocular.	Unsupervised Guide TK612 Gen2 Thermal Imaging Monocular.
2	Unsupervised Pixfra Arc A613 Thermal Imaging Monocular	Unsupervised Pixfra Arc A613 Thermal Imaging Monocular
3	GS - Canon XA10	CD - Canon XA10

4.1.3 The camera footage from locations covered by surveyors was reviewed as required to check and confirm the observations made by the surveyors. The camera footage from unsupervised positions was initially analysed by Wildlife Imaging Systems. Their software identified all movement (frame by frame) within the videos and produced a set of images showing the movement traces for each 30 seconds of video. These images were then reviewed by Greg Slack and where the image identified a trace that

could potentially have been a bat flight, the relevant section of the video was also reviewed. An example image produced by the software is shown in Plate 2.

4.1.4 The nocturnal surveys were carried out in compliance with relevant Bat Survey Guidelines (Collins 2023). The survey continued from 15 minutes before sunset until 1.5 hours after sunset.

4.2 Survey Limitations

4.2.1 No survey limitations were encountered.

Plate 2. An example image showing the flight path of a common pipistrelle as viewed from Surveyor Position 2



5. Results

5.1 Field Survey

Nocturnal Survey

21st May 2025 – dusk emergence survey

5.1.1 The temperature at the beginning of monitoring was 12°C, with one okta cloud cover and calm conditions (Beaufort Scale 0). By the end of the survey, the temperature had dropped to 10°C, and cloud cover had cleared completely, with conditions remaining calm. No rain was recorded throughout. Sunset was at 21:09.

5.1.2 Two common pipistrelle were recorded emerging from the building. The first was observed at 21:33 (24 minutes after sunset) from the south side of the eastern gable (Plate 3). The second emergence occurred at 21:57 from the same location. Common pipistrelle activity was relatively high, with one individual foraging constantly until approximately 22:05.

5.1.3 Other bat activity included soprano pipistrelle (*Pipistrellus pygmaeus*) recorded commuting at 22:09 (60 minutes after sunset), a brown long-eared bat (*Plecotus auritus*) at 22:02, and a brief *Myotis* sp. pass at 22:18.

Plate 3. Wildlife Imaging Systems output showing the common pipistrelle emerging from the eastern verge at 21:33



16th June 2025 – dusk emergence survey

5.1.4 The temperature at the beginning of monitoring was 17°C, with one okta cloud cover and a light air (Beaufort Scale 1). The temperature dropped slightly to 16°C by the end of the survey, with cloud cover clearing entirely and the wind increasing to a light breeze (Beaufort Scale 2). No rain was recorded throughout. Sunset was at 21:37.

5.1.5 Two confirmed bat emergences were observed. The first was a common pipistrelle that emerged at 22:03 (26 minutes after sunset) from the verge of the roof at the eastern gable (in the same location as previously recorded – Plate 3). The second was also a common pipistrelle, observed emerging at 22:04 (27 minutes after sunset). The second roost was located at the southeast corner of the building (Plate 4).

Plate 4. The roost location at the southeast corner of the building



5.1.6 The level of bat activity was lower than previously recorded, with common pipistrelle, soprano pipistrelle, and a *Myotis* bat species recorded during the survey.

6. Assessment

6.1 Summary and Evaluation of Findings

6.1.1 As shown on Figure 3 below, the Sorrel Bank property supported two roosts used by a peak count of two common pipistrelle (Roost 1 & 2). Both roosts were summer day

roosts. The proposed demolition of the building will result in the loss of the common pipistrelle roosts.

Figure 3. Roost locations identified within Sorrel Bank



6.2 Mitigation and Enhancement Recommendations

6.2.1 A bat mitigation licence from Natural England will be required in order proceed with the proposed work.

Protecting bats during demolition

6.2.2 To ensure bats are not killed or injured during the work, a toolbox talk must be provided to all construction staff. The toolbox talk should be given by an experienced bat ecologist before the start of works. The toolbox talk should identify the presence of the known bat roosts to the contractors. It should highlight:

- bat protection legislation;
- the bat roost locations;
- identification of signs of bats;
- the presence and location of the other potential bat roost features identified within the building (and any that may be created during the work);
- how to remove or open up suitable bat roost features where work is required; and
- what to do in the event a bat is discovered.

6.2.3 Following the toolbox talk, the removal of tiles at the verges and along the ridge including any lead flashing, should be supervised by the licenced ecologist.

Replacement roost features

6.2.4 In order to compensate for the loss of the two roosts four integrated bat boxes should be installed across the two new buildings. The boxes should be located at wall top height and should not be directly above windows or doorways. Suitable locations for the boxes are shown in Figures 4 to 6 below.

Figure 4. Plan view of the proposed mitigation within the site

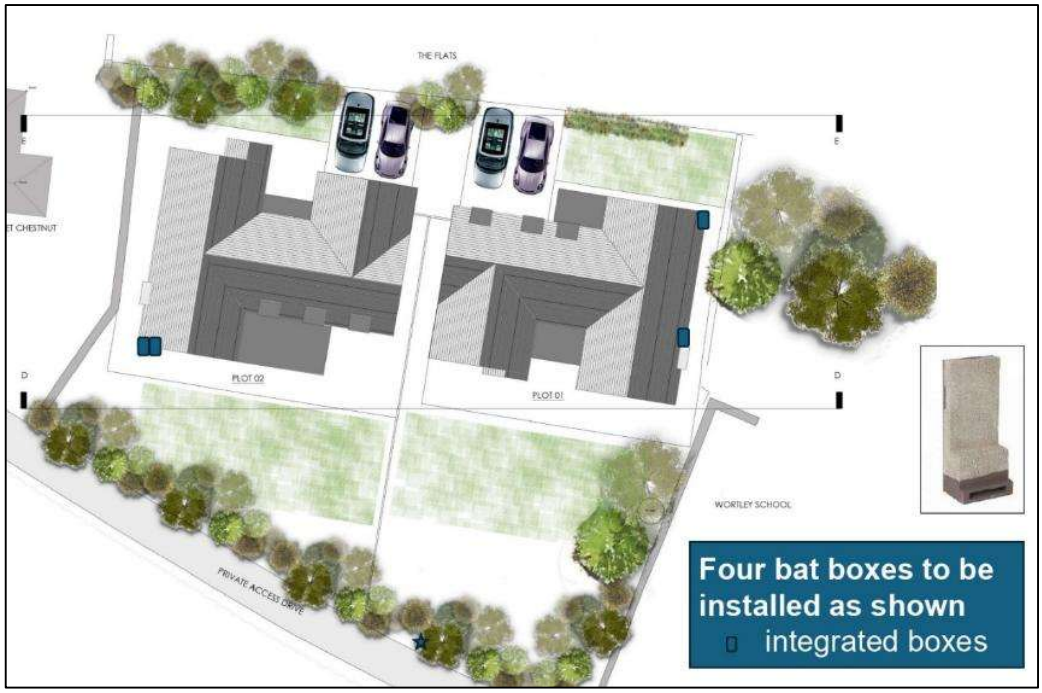


Figure 5. Suitable locations for the two bat boxes on the east elevation of Plot01

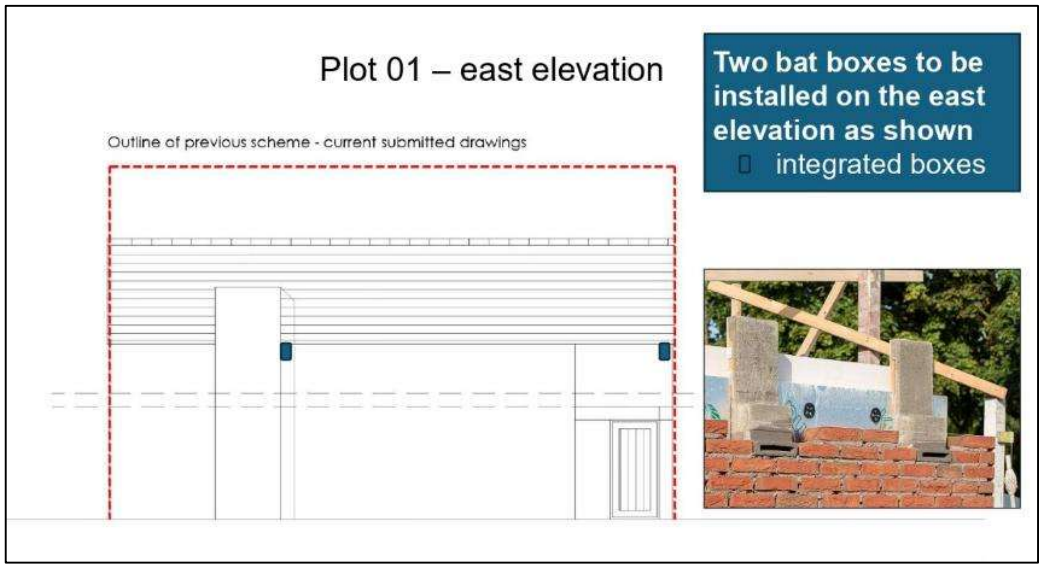


Figure 6. Suitable location for the two bat boxes on the southern elevation of Plot02



Roofing membrane

6.2.5 Many of the breathable roofing membranes are not safe for bats if they come into contact with them. Due to the high suitability of the area for bats it is recommended that the roofing membrane is one of the products identified as safer for use in areas with roosting bats. Further information on the issue of bats and roofing membranes is included in Appendix 2.

Lighting

6.2.6 Any new lighting required for the site must be designed in line with guidance from the Bat Conservation Trust and the Institute of Lighting Professionals (ILP, 2023). New lighting should be a warm white colour (3000 K), should not be directed upwards, and should not be allowed to spill onto the adjacent woodland. The use of PIR sensors and timers should be used to ensure lights are not left on throughout the entire night.

Timing of work

6.2.7 Although the building was not considered particularly suitable for use by hibernating bats, a single or low number of bats can hibernate in virtually any roost. Therefore, as a precaution it is recommended that demolition takes place outside the core bat hibernation season (December to February inclusive).

6.3 Conclusion

6.3.1 A Licence from Natural England is required to proceed with the proposed work. It is considered that the mitigation measures proposed in this report are sufficient to safeguard the bats, if present in the roost during the works. The inclusion of two integrated bat boxes within each new dwelling will mitigate for the loss of the known roosts with lighting and roof membrane safeguards to ensure the suitability of the site in the long-term.

6.3.2 No post construction monitoring is required given the low conservation status of the roosts.

6.3.3 The recommendations included in this report are considered valid for 24 months from the survey date.

7. References

Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. The Bat Conservation Trust.

Arbtech (2024) Preliminary Ecological Appraisal and Roost Assessment Sorrel Bank

ILP (2023) Bats and Artificial Lighting at Night. Institute of Lighting Professionals. Available online at: https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

Appendix 1. Legislation and Policy Guidance

Bats

Bats receive protection under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended).

It is an offence to:

- Deliberately capture (or take), injure or kill a bat.
- Intentionally or recklessly disturb bats whilst they are occupying a structure or place used for shelter or protection or obstruct access to any such place.
- Damage or destroy the breeding or resting place (roost) of a bat.
- Possess a bat (live or dead), or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.
- Sell (or offer for sale) or exchange bats (dead or alive), or parts of parts.

The Convention on Biological Diversity, signed in Rio de Janeiro, Brazil in 1992, requires member states to develop national strategies and to undertake a range of actions aimed at maintaining or restoring biodiversity. The UK Biodiversity Strategy was produced in response to the Convention.

In England & Wales, the Natural Environment and Rural Communities (NERC) Act, 2006 imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". It notes that "conserving biodiversity includes restoring or enhancing a population or habitat". Barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, brown long-eared bat, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, noctule *Nyctalus noctula* and soprano pipistrelle *Pipistrellus pygmaeus* are included as priority species within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. At a more local level there are Local Biodiversity Action Plans for smaller geographical areas which may cover a greater or lesser range of bat species.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:

- Intentionally kill, injure or take any wild bird.
- Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.

National Planning Policy Framework

The National Planning Policy Framework for England was revised in 2024. This document states that plans should 'promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net

gains for biodiversity'.

Appendix 2. Roofing and Cladding Membranes

Standard roof membranes can cause the death of significant numbers of bats. Traditional bitumen coated roofing felt is recommended where roosting bats are expected to be present.

The problem

Standard non-bitumen coated membranes (including almost all breathable membranes) used below roof slates and tiles present a significant problem for bats. Over time, strands are pulled away from the surface of these materials as bats crawl over them. These fuzzy strands are very strong and can tangle and trap bats, sometimes causing the death of bats over multiple years[1].

One example we have encountered comprised a pipistrelle roost which formed in a building extension constructed in 2009. Over the course of just 13 years the roofing felt degraded to the extent that it trapped and killed more than 10 bats. Fortunately, the problem in this roost was identified and remedial work was undertaken to replace the roofing membrane in 2022.

Plate A2.1. Four dead pipistrelles tangled in breathable roofing membrane



Although a new roof might be considered to lack potential bat access points, that is often not the case. Roofs covered with stone slates almost always have gaps large enough to be accessed by bats, this is often also the case where imitation stone slates are used. On older buildings the uneven roof timbers and/or building design also often results in gaps on wall tops and between slates. Even on new builds it is often possible for bats to access potential roosts via features such as dry verge capping. Some bats can access a space no wider than a biro pen, therefore it is not surprising that they can find their way into most buildings.

Safe roofing membranes (and membranes behind cladding)

From a bat perspective, the best membrane option for areas where roosts are expected comprises traditional hessian-backed Type 1F bituminous felt. This product has been widely and safely used as a secondary weather barrier since approximately the 1950s/1960s. Wooden sarking has also been used for many decades and if appropriately treated, is safe for use in bat roosts. Wooden sarking also has the benefit of providing adding additional insulation and is usually breathable.

At the time of writing (and to our knowledge) two products have passed the 'snagging

[1] Wearing S. Essah E., Gunnel K. & Bonser R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. Architecture and Environment

propensity' test; consequently these products are approved by Natural England for use in bat roosts. This test attempts to replicate the wear and tear which results from bats crawling over the membrane. The approved products are: TLX BatSafe[2,3] and SIGA Majcoat 350. Although they have passed this test, it is unclear how these membranes will degrade in the medium and long term, particularly in larger bat roosts. Therefore we do not recommend that they are used for roosts with multiple bats, and particularly for large (maternity roosts). A third product, SIGA Majcoat 200 SOB Diffusion, passed the test for its upper surface only. This product should not be used in known bat roosts or locations where bat mitigation is to be installed. Although none of these products are considered to be as safe as traditional Type 1F bituminous felt, they may provide an option for roofs where future bat use cannot be ruled out, and a breathable solution is required.

Additional considerations

In recent years a fairly substantial proportion of the lofts we have surveyed which had existing breathable felt, were found to have been damaged by wasps (Plate A3.2). The wasps appear to have chewed holes in the felt and formed nests. This doesn't appear to be a problem associated with traditional bitumen coated roofing felt. Any holes within roofing felt are likely to significantly reduce its functionality as a secondary weather barrier. Where bats or birds come into contact with breathable roofing membranes, they can also damage it causing it to leak, they can also significantly reduce the breathability of the felt in that location.

Plate A2.2. Damage to a breathable roofing membrane adjacent to a wasp nest



Traditional bituminous Type 1F roofing felt is a non-breathable product and therefore ventilation is required. Sufficient ventilation can be usually be achieved, even in buildings with vaulted ceilings, however, some consideration during the design stage is required. Products to increase the ventilation within roofs where bituminous Type 1F felt has already been installed are also available.

[2] https://www.gov.uk/government/publications/bats-apply-for-a-mitigation-licence#full-publication-update-history:~:text=Use%20of%20safe%20roofing%20membranes

[3] TLX BatSafe requires all joints and cut edges to be taped in order to prevent the fraying of bare edges.

Appendix 4. Bat Records

In accordance with best practice and the requirements of bat licensing, bat records collected during surveys are supplied to the relevant biological record centres and bat groups. The records to be supplied in accordance with this survey are shown below.

Date	Species	Site Address	OS Grid Reference	Notes
16/06/2025	Common pipistrelle	Sorrel Bank, Wortley	SK 30886 99373	Two roosts used by a total of two bats
21/05/2025	Brown long-eared bat	Sorrel Bank, Wortley	SK 30886 99373	In flight record.
16/06/2025	Myotis bat species	Sorrel Bank, Wortley	SK 30886 99373	In flight record
16/06/2025	Soprano pipistrelle	Sorrel Bank, Wortley	SK 30886 99373	In flight record