ENVIRONMENTAL CONSULTANTS

Date: April 2023

Contract Ref: 2574

BAT SURVEY REPORT

SHEPHERDS FOLD, FINWOOD ROAD,
WARWICK, CV35 7DF

for

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CONTROL SHEET

Sarah Armstrong
Shepherds Fold, Finwood Road, Warwick, CV35 7DF
Bat Survey Report

	Name	Position
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Contract No.	Project Contact	Revision No.	Date of Issue
2574	Jessica Stuart-Smith	01	27 July 2022
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Disclaimer

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Template Version: V3 (March 2022)

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1. RECOMMENDATIONS

1. The barn (B1) and stable block (B2) have been confirmed as active bat roosts. **No works should be undertaken which damage, block or otherwise alter the identified roosts or risk disturbing, killing or injuring bats until the requisite licence has been obtained from Natural England** (see below).

2. The conversion of these buildings will require the prior acquisition of a bat mitigation (development) licence from Natural England. In order to apply for a Natural England licence full planning permission must be in place and all relevant (bat) Conditions discharged. This licence may only be granted subject to the following tests having been achieved[1]:

    - The development must demonstrate that it is required for reasons of 'over-riding public interest';
    - There must be '*no satisfactory alternative*' to the development proposals as submitted and;
    - The proposals must not be detrimental to the '*favourable conservation status*' of the species affected (bats).

3. The following mitigation/compensation is the minimum requirement for works affecting '*Maternity sites of common species'* (brown long-eared bats) and *'small numbers of common species. Not a maternity site*' (common pipistrelle and soprano pipistrelle).

    '*Timing constraints. More or less like-for-like replacement. Bats not be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred*.'

[1] Natural England have adopted a charging system for the determination of bat mitigation (development) licenses. This includes all applications and modification requests received, unless the licence is issued for a purpose which is exempt from charges. Focus Environmental Consultants will provide further advice on charges attributable to your project.

4. This report is considered valid for 12 months for planning purposes (CIEEM, 2019). Update surveys may be required to reassess the condition of the site (and its suitability for bats) should this 12-month period be exceeded. In this scenario, a reduced level of survey effort would normally be considered appropriate in line with published best practice guidelines on proportionality of survey effort (see *e.g.* Collins, 2016; Mitchell-Jones, 2004).

5. **NOTE**: licensing authorities typically require bat licence applications to be supported by up-to-date survey information from the most recent optimal survey season (May – August). As of April 2023, it is not considered necessary at this stage to update any of the survey work undertaken in 2022. However, to allow Natural England to process the licence, a walkover survey (including an internal inspection of the buildings on site), will need to be undertaken within three months prior to submission of the application to ensure that conditions have not changed since the most recent survey (7 July 2022) was carried out.

1.1 Mitigation Strategy

The following scheme of mitigation, compensation and enhancement has been designed and agreed with the client to effectively implement the 'mitigation hierarchy'. The scheme will include the features listed below.

- Installation of three receptor bat boxes (*e.g*. Schwegler 2F and Schwegler 2F-DFP Bat Boxes) or similar on mature trees located within the landownership of Shepherds Fold. Boxes are to be installed at least 4m above ground level prior to any works starting on site.

- Species-specific compensation and enhancement to offset conversion impacts via the incorporation of a brown long-eared bat loft within the post-developed scheme. The bat loft is to be located over the existing garage with access facilitated via retrospectively-fitted bat ridge and slope access points. The bat loft is to have a minimum void height (floor to ridge) of at least 2m (preferably exceeding 2.5m) and will utilise the full footprint of the garage (approximately 10m x 5m). The loft is already underlined with bitumastic felt, which is suitable for bats.

- Implementation of a phased scheme of works to allow completion of the compensatory bat loft prior to the commencement of conversion of the barn (location of the previously identified brown long-eared bat maternity roost) *i.e.* construction of the bat loft August-September 2023 with conversion work commencing October 2023.

- Pre-start survey (including dusk or dawn inspection subject to weather conditions) preceding start of works to identify any changes in roost status and confirm the location of any roosting bats prior to works commencing.

- Provision of a 'toolbox talk' to relevant development personnel (*e.g.* roofing contractor, demolition contractor, builder *etc.*) to ensure understanding of legal and practical requirements and facilitate smooth delivery of development.

- Direct ecological supervision of licensable development activities. Bats to be relocated by the named ecologist (or accredited agent) by hand to the receptor bat boxes, if required. If a bat is discovered when the Named Ecologist is not on-site, works will cease immediately, and advice sought.

- Post-development monitoring will be undertaken for a period of two years. This will be formed of an annual internal inspection and dusk emergence survey of the bat loft. The bat boxes will also be subject to inspection.

2. SUMMARY OF RESULTS

1. Development proposals are for the conversion of the barn into residential accommodation. Focus Environmental Consultants have been appointed by Sarah Armstrong to provide advice on the potential impact of the proposals upon bats and make recommendations as appropriate to ensure compliance with wildlife legislation and recognised best practice.

2. The site has previously been subject to an Extended Phase 1 Habitat & Protected Species Scoping Survey by GS Ecology (see GS Ecology, 2021), which identified the presence of a small brown long-eared bat maternity roost, along with common and soprano pipistrelle day roosts within the barn and stables in 2019. A walkover survey undertaken by GS Ecology in 2021 identified that there had been no significant changes at the site, and that the roost status is unlikely to have changed.

3. An update Preliminary Roost Assessment of the site (centred on Ordnance Survey grid reference SP 196 701) to include the garage (not previously subject to surveys) was undertaken on 6 June 2022. The survey site comprises a barn (B1), former stable block (B2), and a garage (B3) within a courtyard setting of the main property. The buildings are immediately surrounded by well-managed gardens, with mature treelines and hedgerows connecting the site to high-quality commuting and foraging habitats (*e.g.* canal and woodland blocks).

4. The barn (B1) and stables (B2) have previously been identified as confirmed roosts, whereas the garage (B3) was identified as having ‘moderate’ suitability for bats with reference to published guidelines (Collins, 2016). Therefore, further specialist bat surveys were therefore required to update the previous survey work undertaken at the site, to include the addition of the garage (B3).

5. One dusk emergence and one pre-dawn return survey was undertaken of the buildings on 16 June 2022 and 7 July 2022 respectively by six experienced and appropriately licensed surveyors.

6. The surveys have confirmed the presence of the following roosts within the structures on site:
    - **The barn (B1):** day roost used by a small number of common pipistrelle (peak count: 2),
    - **The stable (B2):** a small maternity roost of brown long-eared bats (peak count: 3), and a feeding / night roost for brown long-eared bats (peak count: 2).
    - No bats were observed roosting within the garage (B3).

7. Bat foraging and commuting activity was observed on site during all of the surveys. The following bat species were recorded on / passing through the site; common pipistrelle, soprano pipistrelle, brown long-eared bat, noctule, and *Myotis* sp.

3. DISCUSSION & CONCLUSIONS

3.1 Interpretation of Results

The survey results have confirmed the presence of a small brown long-eared bat maternity roost, and night roost / feeding perch, and day roosts for small numbers of common pipistrelle within B1 and B2 at Shepherds Fold. As all roosts are legally protected; a Natural England licence will be required to lawfully convert the barn, and stables.

The possibility of the structures being used during the winter period for hibernation cannot be entirely ruled out. However, it would be considered unlikely as during hibernation, bats require roosts that are cool, humid and remain at a constant temperature (Collins, 2016). The under-tile roosting locations identified, as well as the open nature of the barn and stables mean they are likely to be subject to large temperature fluctuations during winter, significantly reducing their suitability for hibernating bats.

The stable does not currently form part of this planning application and will be dealt with by way of a separate application to be submitted at a later date. However, it is acknowledged that the site should be assessed as a whole, and as a result the proposed mitigation will take into consideration the overall impacts on the bat population at the site. This information can additionally be used to guide the submission, mitigation, working methods, monitoring, and maintenance of any future bat licences (and associated works), which may be required as part of any future planning applications associated with the site.

Taking the results collectively and applying the guidelines of Natural England (see Mitchell-Jones, 2004, p. 39 Figure 4) the conservation significance of the identified roosts is as follows:

- The barn (B1) – **low** based on the presence of *'small numbers of non-breeding common species. Not a maternity site'* (common pipistrelle).

- The stable (B2) – **medium** based on the presence of a *'maternity site of common species'* (brown long-eared bat), and a *'night roost / feeding perch for common species'* (brown long-eared bat).

3.2 Predicted Impact in Absence of Mitigation

In the absence of mitigation, the development proposals have the potential to cause short-term impacts on bats through killing / injury. Associated impacts include noise, dust, vibration, and physical disturbance of roosting bats.

Unmitigated, the proposed conversion of B1, and future proposed conversion of B2 will cause the destruction of day roosts used by small numbers of common pipistrelle and would cause the destruction / disbandment of a small maternity roost of brown long-eared bats.

Long-term impacts in the absence of mitigation would include the destruction and roost loss within both B1, and B2, as well as the net reduction in bat activity post-development which may be anticipated because of a likely increase in anthropogenic impacts at the site.

3.3 Predicted Scale of Impact

Taken collectively and applying the guidelines of Natural England (see page 37 of Mitchell-Jones, 2004 and Natural England, 2022a, the scale of impact on the bat species presently roosting on site is as follows:

- The barn (B1) – **medium** based on the destruction of common pipistrelle day roost.
- The stable (B2) **high** based on the destruction of a brown long-eared bat maternity roost, night roost / feeding perch.

3.4 Compliance with Three Licensing Tests

It is the opinion of the author of this report that provided an appropriate scheme of mitigation, compensation and enhancement measures is provided, it should be possible to demonstrate compliance with the 'favourable conservation status test'. The 'over-riding public interest' and 'no satisfactory alternative test' are not primarily

ecological considerations and will be addressed by other parties within any future licence application as required. In our experience and based on the evidence available at this juncture we consider it likely that a bat mitigation licence will be forthcoming from the relevant SNCO for this development project.

4. ANNEXES

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4.3 Plans

4.4 Survey Objectives

4.5 Limitations

4.6 Methods & Parameters

4.7 Background Data

4.8 References & Bibliography

4.9 Bat Ecology & Legislation

4.1 Photographs

Plate 1: showing a typical external view of the Barn (B1). Photograph looking north.

Plate 2: showing a typical internal view of the Barn (B1). Photograph looking south-west.

Plate 3: showing a typical internal view of the upper floor of the north-eastern gable end of the Barn (B1).

Plate 4: showing a typical external view of the Stables (B2). Photograph looking east.

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Plate 7: showing typical internal view of the Garage (B3), currently used for storage.

Plate 8: showing a typical view of the roof structure of the garage (B3).

Plate 9: showing common pipistrelle roosting location on the northern elevation of B1 on 16 June 2022 and 7 July 2022.

Plate 10: showing common pipistrelle roosting location on the southern elevation of B1 on 16 June 2022 and 7 July 2022.

Plate 11: showing opening within the southern gable of B2 through which brown long-eared bats are entering the building.

4.2 Survey Data

4.2.1 Preliminary Roost Assessment

Table 1: Summary of Preliminary Roost Assessment at Shepherds Fold on 16 June 2022.

Area / Feature	Observations
The Barn (B1)	External Description: The barn is a two-storey, brick-built structure, with a single-storey extension to the south-west. The pitched roof is overlain with flat clay tiles, with multiple gaps observed beneath lifted slope and ridge tiles / missing tiles. The brickwork is generally in a good state of repair. Gaps were observed in ventilation bricks on both the north-eastern and south-western gables. Internal Description: The barn is open to pitch with exposed beams and rafters, and a central ridge-board. Bitumastic felt is present. The ridge is largely clear of cobwebs. Internal light levels were relatively low. An upper floor is located towards the north-eastern gable. Several old bat droppings, characteristic of brown long-eared bats were noted. However, no bats were observed *in situ*.
The Stable (B2)	External Description: The stables are a single-storey, brick-built structure with a pitched roof overlain in flat clay tiles. Similarly to the barn, a number of gaps were noted beneath lifted slope and ridge tiles, and a number of missing tiles were additionally observed. The brickwork appears to be in a good state of repair. A large opening is located on the south-eastern gable, which allows direct internal access into the Stables. Internal Description: The stables are divided into three sections. The roof structure is accessible throughout the entirety of the structure, above the wall tops. The building is open to pitch with exposed beams and rafters, and a central ridge-board. Bitumastic felt is present. Within the northern most section, an accumulation of brown long-eared bat droppings, and feeding remains were noted on the stored furniture within, and the ridge-board within this section appeared clear of cobwebs.
The Garage (B3)	External Description: The garage is a single-storey, brick-built structure with a pitched roof overlain in flat clay tiles. Gaps were noted beneath the ridge tiles, a

	number of lifted / missing slope tiles on the south-western elevation. The south-eastern gable is covered in ivy, as are the south-western eaves. <u>Internal Description:</u> The garage is open to pitch with exposed beams, and rafters. Bitumastic felt is present. The garage is currently used for storage. No signs of bats (*e.g.* droppings), was observed.

Table 2: Summary of bat foraging & commuting habitat potential at Shepherds Fold.

Foraging / Commuting Habitat Potential			
High quality semi-natural habitats	**Within immediate vicinity (<250m)**	**Within wider landscape (<2km)**	**Comments**
Broadleaved/mixed woodland Waterbodies Tree lines/stands Mature hedgerows	☐ ☒ ☒ ☒	☒ ☒ ☒ ☒	The buildings at Shepherds Fold are immediately surrounded by managed and landscaped gardens. Mature treelines and hedgerows connect the site to surrounding arable / pastoral farmland, and waterways are located within 250m of the site.
General Landscape Character	Rural		
Negative Characters		**Positive Characters**	
Highly urbanised environment ☐ Night lighting (significant) ☒ Isolated from high-value habitat ☐ Modern building construction ☐ Human disturbance (significant) ☐ High exposure (altitude, prevailing winds) ☐ Nearby buildings modern or isolated ☐		Rural environment ☒ Absence of night lighting ☐ Good connectivity to high-value habitat ☒ Building construction suitable for bats ☒ Absence/Minimal human disturbance ☒ Low exposure (altitude, prevailing winds) ☐ Cluster of suitable old buildings ☒	
Other ☐ specify		Other ☐ specify	
Conclusion: (Collins 2016)	High - Continuous, high-quality habitat that is well connected to wider landscape, that is likely to be used regularly by commuting/foraging bats.		

4.2.2 Nocturnal Surveys

A brief summary of the results of each nocturnal survey is provided below, along with sonograms. Field survey recording sheets are held by Focus Environmental Consultants and are available on request.

<u>Dusk Emergence Survey (16 June 2022):</u>

Surveyor 1 was located to the north-west of B1.

Surveyor 2 was located to the north-east of B1.

Surveyor 3 was located to the south-west of B1.

Surveyor 4 was located to the west of B2.
Surveyor 5 was located to the east of B2.
Surveyor 6 was located to the south of B2.

The survey was supplemented with two infra-red cameras, and a thermal imaging unit.

The survey started at 21:15. The first bats heard were high overhead passes by noctule bats at 21:37, and 21:41, respectively. At 21:47 a common pipistrelle was observed emerging from an under-tile location on the northern elevation of Barn 1, closely followed by a common pipistrelle emerging from an under-tile location of the southern elevation of Barn 1 at 21:56. Foraging and commuting activity throughout the survey was high, with passes by common pipistrelle, noctule, and brown long-eared bats. An internal inspection of the buildings was carried out towards the end of the survey, which revealed two brown long-eared bats perched within the northern most section of the Stables. The survey ended at 23:00.

Dusk Survey Count:
Common pipistrelle (day roosts): 2
Brown long-eared bat (night roost / feeding perch): 2

Dawn Return Survey (7 July 2022):
Surveyor 1 was located to the north-west of B1.
Surveyor 2 was located to the south of B1 & B2.
Surveyor 3 was located to the east of B1 & B2.
Surveyor 4 was located to the north-east of B3.
Surveyor 5 was located to the south-west of B3.

The survey was supplemented with two infra-red cameras, and a thermal imaging unit.

The survey started at 03.25. Commuting and foraging activity throughout the survey was high with passes by common and soprano pipistrelle, brown long-eared bat and *Myotis* sp. At 04:18 three brown long-eared bats were observed entering B2 through the south-eastern gable and were assumed to have returned to roost. At 04:34 a common pipistrelle was observed swarming and returning to roost beneath a tile on

the southern elevation of B1, closely followed by a second common pipistrelle returning to roost in an under-tile location of the northern elevation of B1. The survey ended at 05:10.

Dawn Survey Count:

Common pipistrelle (day roost): 2

Brown long-eared bat (small maternity roost): 3

Sonograms

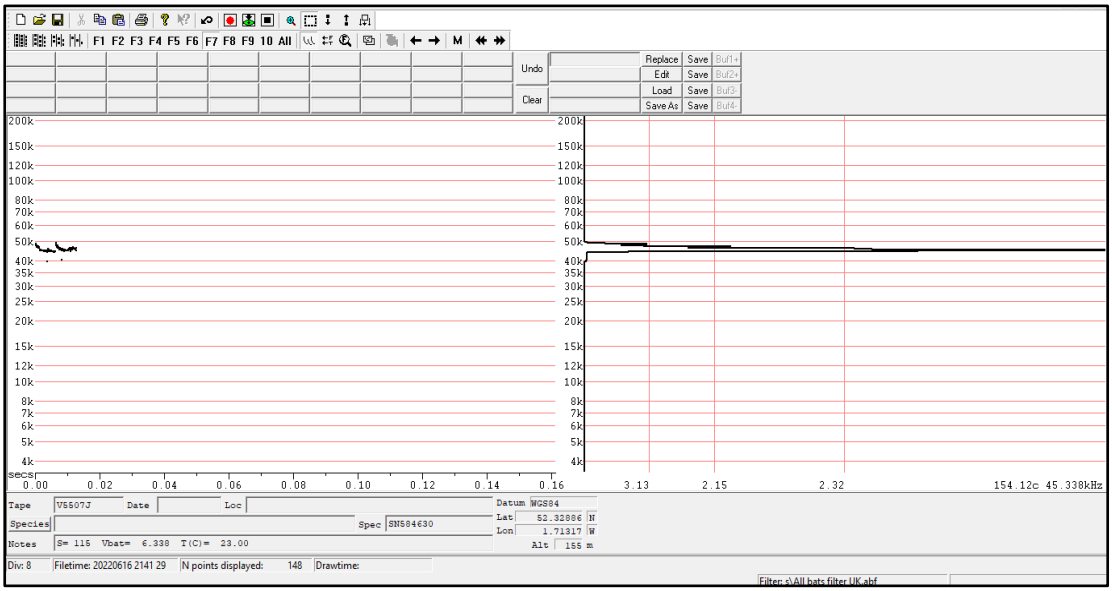


Figure 1: showing a common pipistrelle echolocation at 21:41 on the 16 June 2022 at Shepherds Fold.

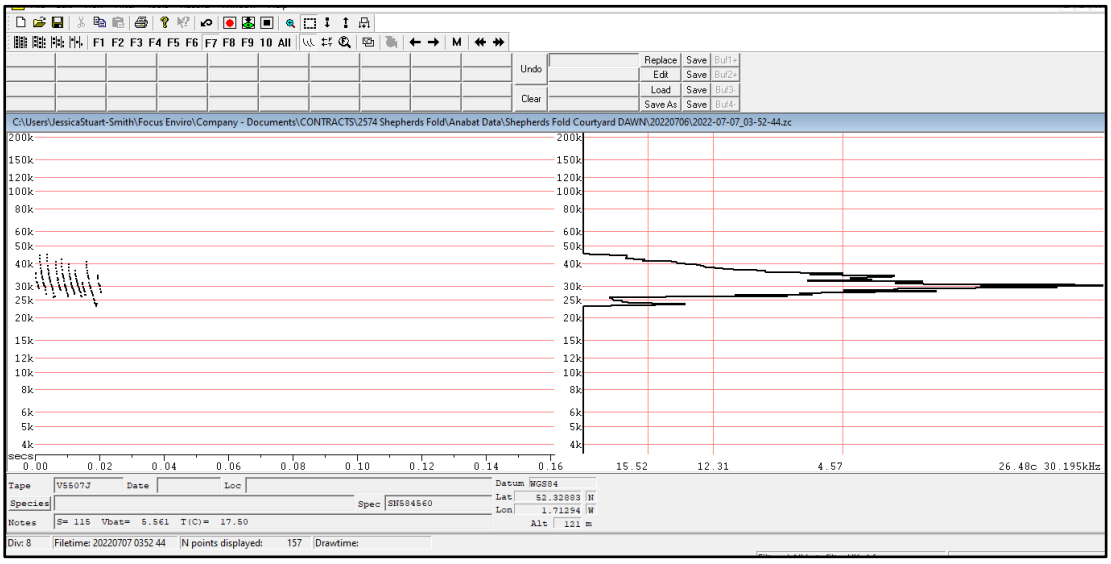


Figure 2: showing a brown long-eared bat echolocation at 03:52 on the 07 July 2022 at Shepherds Fold.

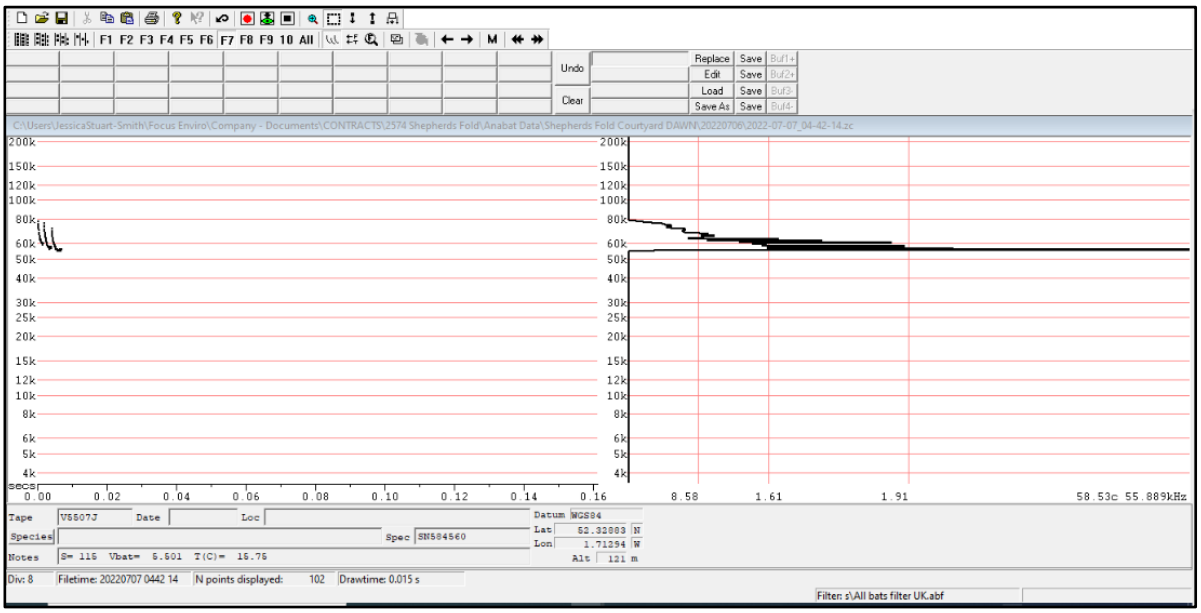


Figure 3: showing a soprano pipistrelle bat echolocation at 04:42 on the 07 July 2022 at Shepherds Fold.

4.3 Plans

Plans:

4.3.1 Location Plan

4.3.2 Preliminary Roost Assessment Plan (16 June 2022)

4.3.3 Dusk Emergence Survey Plan (16 June 2022)

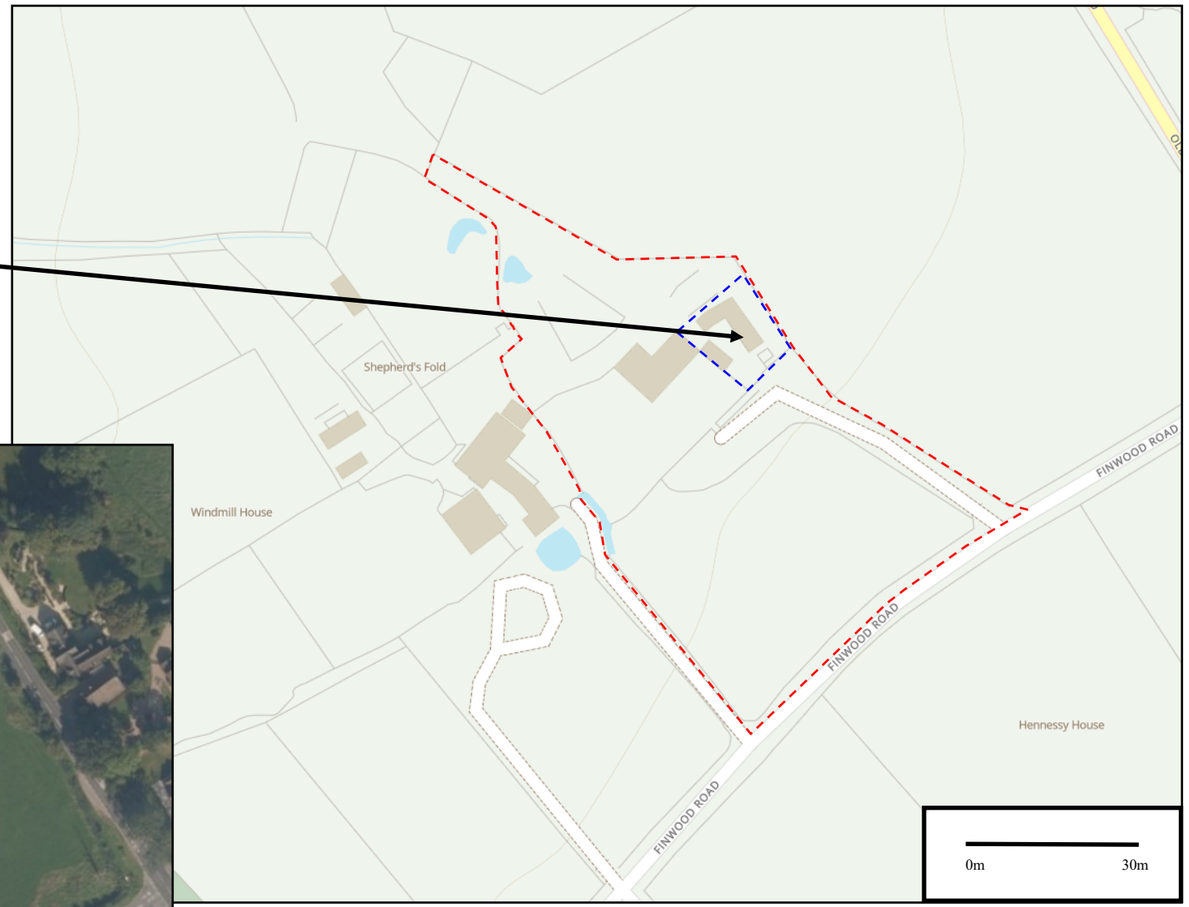
4.3.4 Pre-dawn Return Survey Plan (7 July 2022)

4.3.1. Location Plan

Proposed Development Footprint

Wider Site Boundary

Site

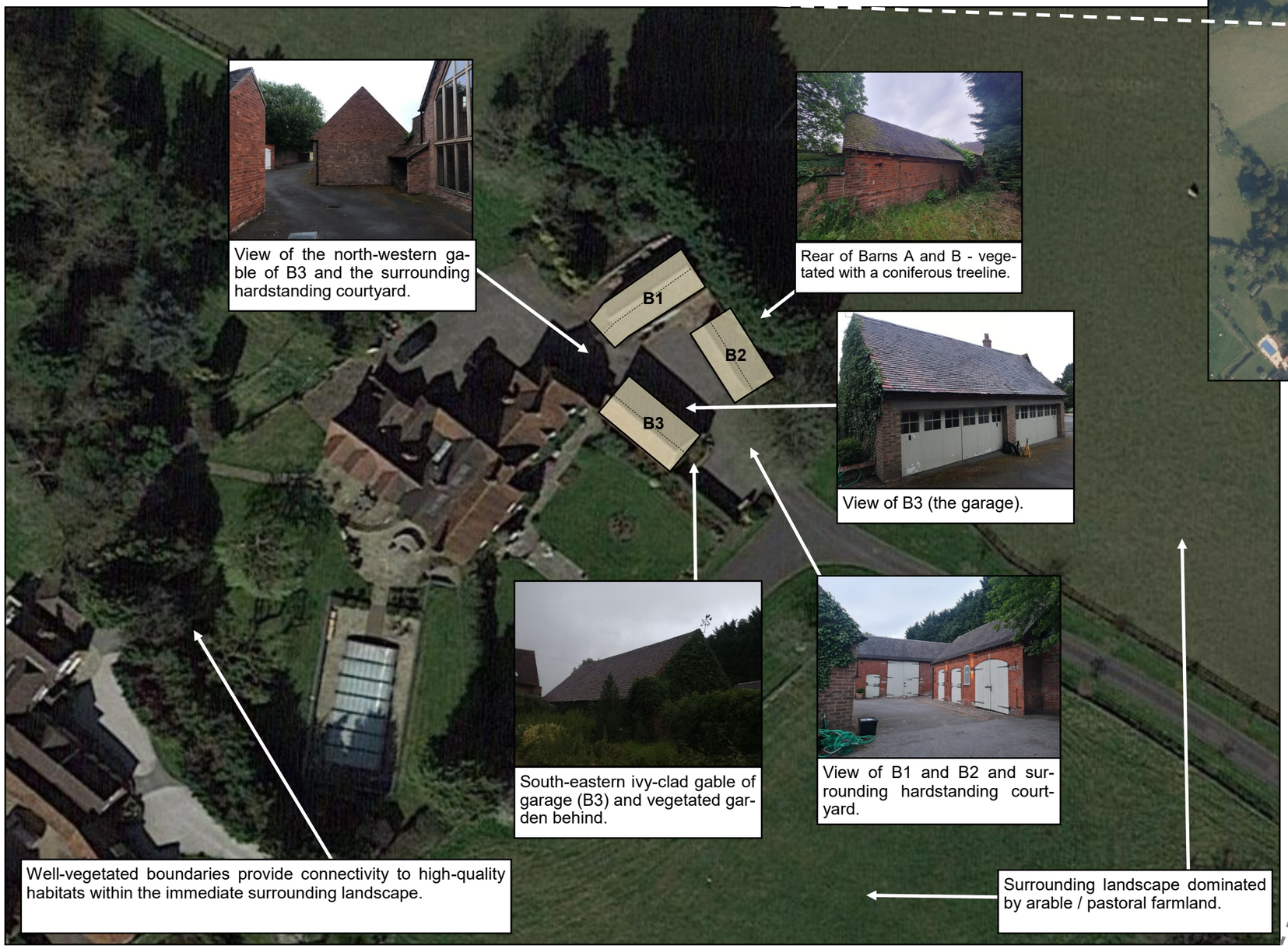


NORTH

Client: Sarah Armstrong
Site: .Shepherds Fold, Finwood Road, Warwick, CV35 7DF
Title: Location Plan
Contract: 2574
Date: April 2023

Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.

4.3.2 Preliminary Roost Assessment Plan (16 June 2022).



Proposed Development Footprint

Wider Site Boundary

NORTH

Client: Sarah Armstrong

Site: .Shepherds Fold, Finwood Road, Warwick, CV35 7DF

Title: Preliminary Roost Assessment Plan

Contract: 2574

Date: 16 June 2022

Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.

4.3.3 Dusk Emergence Survey Plan (16 June 2022).

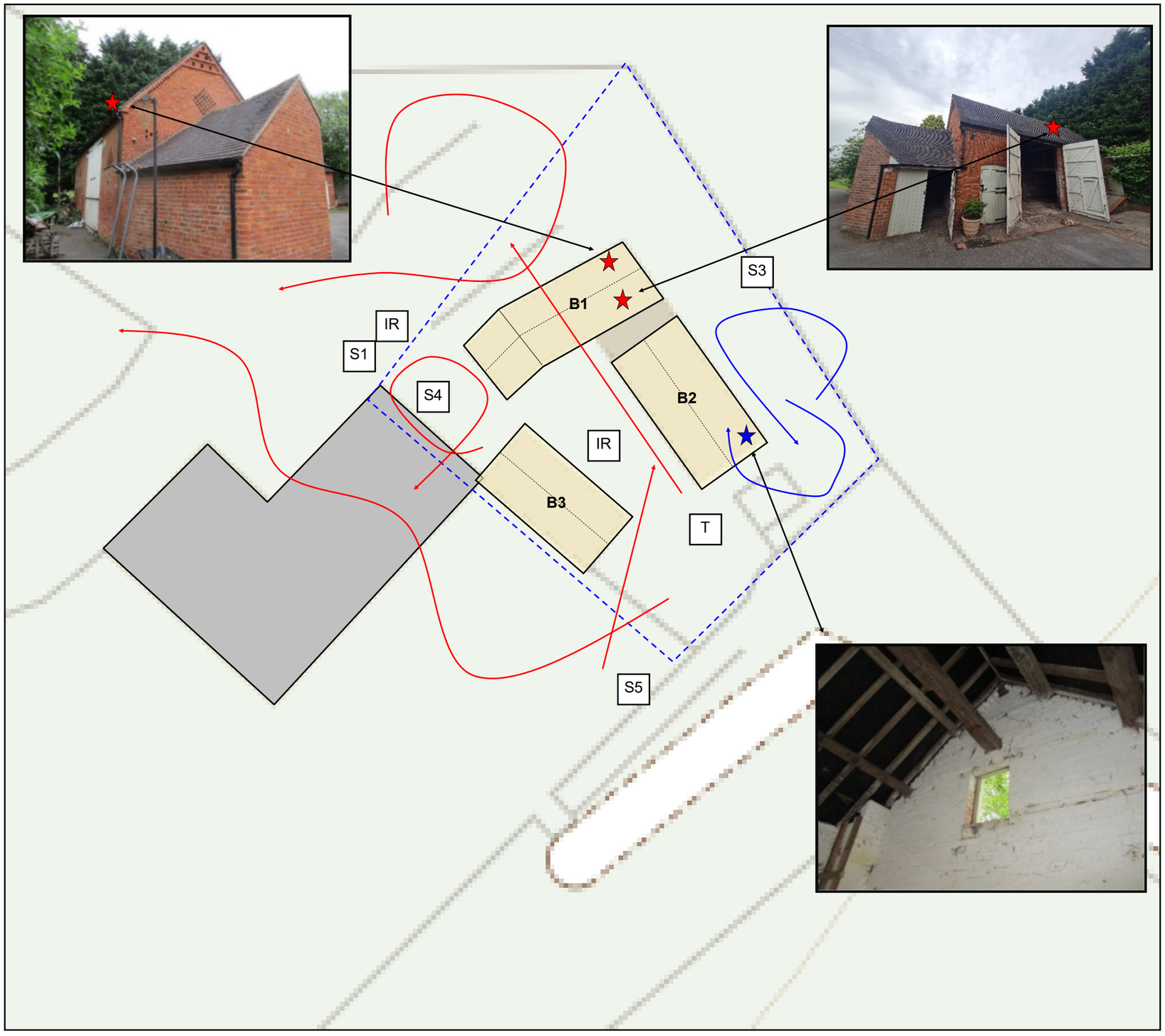
KEY:

- Proposed Development Footprint
- Main property (outside survey boundary)
- S1 — Surveyor location
- A — Static bat detector (Anabat Express)
- IR — Infra-red camera location
- T — Thermal imaging camera location
- Common pipistrelle roosting location (day roosts)
- Brown long-eared bat roosting location (night roost / feeding perch / small maternity roost)
- Common pipistrelle bat activity
- Brown long-eared bat activity

NORTH

Client: Sarah Armstrong
Site: .Shepherds Fold, Finwood Road, Warwick, CV35 7DF
Title: Dusk Emergence Survey Plan
Contract: 2574
Date: 16 June 2022

Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.



KEY:

- Proposed Development Footprint
- Main property (outside survey boundary)
- S1 — Surveyor location
- A — Static bat detector (Anabat Express)
- IR — Infra-red camera location
- T — Thermal imaging camera location
- Common pipistrelle roosting location (day roosts)
- Brown long-eared bat roosting location (night roost / feeding perch / small maternity roost)
- Common pipistrelle bat activity
- Brown long-eared bat activity

NORTH

Client: Sarah Armstrong
Site: .Shepherds Fold, Finwood Road, Warwick, CV35 7DF
Title: Pre-Dawn Return Survey Plan
Contract: 2574
Date: 7 July 2022

Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.

4.4 Survey Objectives

The objectives of the survey were:

- to undertake a daytime preliminary roost assessment for bats, following best practice survey guidelines (Mitchell-Jones, 2004; Collins, 2016).
- to carry out nocturnal bat roost surveys based on the suitability of the building for bats and previous daytime survey work completed.
- to provide specialist advice on the possible presence of bats in relation to the planning process.
- to report survey results, likely development impacts and make appropriate recommendations for further surveys and/or works as necessary to ensure compliance with wildlife legislation and standard best practice; and
- to identify appropriate avoidance, mitigation, compensation and enhancement measures as required to demonstrate compliance with the 'mitigation hierarchy' and requirements of local and National biodiversity policies (*e.g.* the 'biodiversity duty' enshrined within S.40 of the NERC Act 2006, NPPF *etc*).

4.5 Limitations

The limitations of the survey were:

- Lack of third-party data search

Nevertheless, this is not considered to be a significant survey limitation given the results obtained during the surveys undertaken by Focus Environmental Consultants in 2022, and information provided with regards to previous survey effort at the site in 2019 and 2021.

4.6 Methods & Parameters

Preliminary Roost Assessment:

An internal and external inspection of the buildings was carried out following recognised best practice guidelines (Collins, 2016; Mitchell-Jones, 2004; Natural England & DEFRA, 2015) to identify any possible exit and entry points of bats and to search for evidence of bats.

Within the buildings, particular attention was paid to areas suitable to support roosting bats, including joints and crevices within the beams and gaps between roofing materials. Field signs that would indicate the presence of bats were searched for. These included:-

- bat droppings on the floor and walls of the buildings.
- feeding remains (particularly butterfly & moth wings) usually on the floor of buildings.
- evidence of urine staining around possible roost entrances.
- presence of areas cleared of cobwebs.
- oily stains around possible roost entrances.

Taking into account the presence of such features in any structures on site, as well as their height, aspect, isolation, potential impact of wind, rain and artificial lighting, buildings were then assessed as having either 'high', 'medium', 'low' or 'negligible' potential to support roosting bats, and categorised using Collins (2016) (see Table 1, below).

Table 3: Guidelines for Assessing the Potential Suitability for Roosting Bats of Structures within a Development Site[2]

Suitability	Description: Structure
Negligible	Negligible features on the structure that are likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide appropriate conditions (*i.e*. space, protection, shelter) and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (*i.e*. unlikely to be used as a maternity roost).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their appropriate condition (*i.e*. size, shelter, protection) and surrounding habitat. However, it is unlikely to support a roost of high conservation value (with respect to roost type only).
High	A structure 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 conditions (*i.e*. size, protection, shelter) and surrounding habitat.
Confirmed Roost	Structure with confirmed bat roost.

[2] Taken and adapted from: **Collins, J. (ed.) (2016)**. *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3nd Edition*. The Bat Conservation Trust, London, UK.

Emergence, Activity and Pre-dawn Surveys:

The nocturnal surveys were conducted by experienced and/or appropriately licensed surveyors using a variety of equipment with the aim of providing maximum confidence in the presence or absence of roosting bats. Surveyors were situated at strategic points around the site, to ensure full visual coverage of potential bat emerge/return points and roosting locations. The buildings were observed for the duration of the surveys, to record the emergence of any bats.

Survey Parameters:

Table 4: Details of survey parameters for Shepherds Fold.

Date	Survey Type	Sunset / Sunrise	Survey Start & End Times	Weather Conditions	Surveyors & Licence No.	Equipment
16 June 2022	Daytime	n/a	n/a	Warm, dry, and still.	J. Stuart-Smith: 2016-25531-CLS-CLS J. Jamieson (n/a)	Ladders, high-powered torch with red filter, endoscope.
16 June 2022	Dusk Emergence	Sunset: 21:30	Start: 21:15 End: 23:00	Start: 21°C End: 20°C Relative humidity: 55% Beaufort scale: 0 Cloud cover: 100%	J. Stuart-Smith: 2016-25531-CLS-CLS P. Vincent 2020-49360-CLS-CLS (NRW: S087384-1) D. Young (n/a) A. Wright (n/a) G. Rudd (n/a) J. Jamieson (n/a)	Anabat Walkabout (x3) Batbox Duet (x2) SSF Bat 2 Detector (x1) Pettersson D240X (x1) EchoMeter Touch 2 (x1) Anabat Express (x3) Pulsar Helion XP5O Pro thermal imaging scope. SONY: Digital 4K Video Camera Recorder FDR-AX53 Handycam (IR cam).

						CANON: XA40 (IR cam).
7 July 2022	Pre-dawn Return	Sunrise: 04:55	Start: 03:25 End: 05:10	Start: 15°C End: 15°C Relative humidity: 81% Beaufort scale: 1 Cloud cover: 100%	P. Vincent 2020-49360-CLS-CLS (NRW: S087384-1) K Coope (2022-10235-CL17-BAT) J. Toogood (n/a) T/ Darby (n/a) G. Rudd (n/a)	Anabat Walkabout (x4) Pettersson D240X (x1) Anabat Express (x1) Pulsar Helion XP5O Pro thermal imaging scope. SONY: Digital 4K Video Camera Recorder FDR-AX53 Handycam (IR cam). CANON: XA40 (IR cam).

4.7 Background Data

Pre-existing Information on the Bat Species at the Survey Site:

An update Preliminary Roost Assessment was completed at the site on 16 June 2022 by an experienced and appropriately licensed surveyor from Focus Environmental Consultants.

Previous survey work has been undertaken by GS Ecology in 2021. As part of this initial survey work, a desk study data search was undertaken. Within 2km of the site there are three records of licenses issued by Natural England for works affecting bats, all of which are within 1km of the site, and two of which affect bat maternity roosts. These records are summarised in Table 5, below.

Distance from the application site	Species affected	Breeding site	Year licence was issued
Within 0.1km	Common pipistrelle	No	2015
0.4km East	Brown long-eared bat, common pipistrelle	Yes	2012
0.6km South-west	Brown long-eared bat, common pipistrelle	Yes	2015

Status of Bat Species:

Survey results have confirmed that the site supports day roosts for small numbers of common pipistrelle (B1) and a small maternity roost, night roost, and feeding perch for brown long-eared bats (B2).

Common and soprano pipistrelles are both relatively common species locally and nationally and population estimates for the UK are between 1 – 3 million individuals. Soprano pipistrelles are nevertheless listed as a species ‘of importance for the purpose of conserving biodiversity’ under S.41 of the Natural Environment and Rural Communities Act 2006.

Brown long-eared bats are common species at local, county and regional levels in mainland Britain and Ireland. However, the brown long-eared bat has suffered ongoing declines due to intensification of farming practices and loss of roosting and foraging sites to development and barn conversions. The brown long-eared bat is

listed as a species ‘of importance for the purpose of conserving biodiversity’ under S.41 of the Natural Environment and Rural Communities Act 2006.

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4.9 Bat Ecology & Legislation

Only two different families of bats occur in the UK, of which the most numerous are the "vesper bats" or ***Vespertilionidae***. Only two members of the ***Rhinolophidae*** or "horseshoe bats" occur in the UK, namely the greater and lesser horseshoe bat. The UK currently supports 17 different resident species of bat from these two family assemblages. One of these, Alcathoe's bat (*Myotis alcathoe*) has only been discovered as resident in 2010. The greater mouse-eared bat (*Myotis myotis*) was previously thought to be extinct as a UK mammal species until a single individual was discovered in 2002 at a known hibernation site in Sussex, this may yet turn out to be resident species but is currently regarded by the Bat Conservation Trust as a vagrant/occasional winter visitor. Another species, the pond bat (*Myotis dasycneme*) is increasingly being identified in the UK and may currently be in the process of colonising the country from continental Europe.

British bats are entirely insectivorous, and consume a variety of invertebrate species of various shapes and sizes from the smallest gnats and midges to cockchafers, ground beetles and spiders. Bats are increasingly regarded as being species of conservation concern owing to a decline in both numbers and range. The reasons for these declines are thought to relate primarily to changing agricultural practices (in particular intensification of agriculture and increased use of pesticides) and direct loss of foraging habitats and roosts from human development such as infrastructure projects and conversion of agricultural buildings (see *e.g.* JNCC, 2004; www.bats.org.uk). All UK bats utilise echolocation to navigate within their environment and hunt for food. It is increasingly being discovered that echolocation calls can also have an important 'social communication' function between bats.

Bats are strictly nocturnal unless disturbed, diseased or starved of food due to adverse weather conditions. Consequently bats require a place of shelter and protection (commonly termed a roost) from predators during the daytime. Bat roosts can be found in a variety of both natural and anthropogenic situations including buildings (residential, agricultural, industrial, modern and ancient), mature trees, bridges, tunnels, caves and mines. Purpose built bat boxes are now commercially available and bats will use these, as well as taking advantage of unoccupied bird boxes if available.

Bats are mobile throughout the year and may use different types of roost according to the particular needs of their lifecycle. Different roost types include maternity roosts, hibernation roosts, satellite roosts, day roosts, night roosts, transitional roosts, feeding perches and mating roosts. The most significant roosts in terms of bat numbers and conservation significance are 'maternity roosts' and 'hibernation roosts'. Pregnant female bats will aggregate in maternity roosts to give birth and rear their single offspring (twins occur rarely). These types of roost are normally associated with warm, protected sites. During colder months of the year, bats go into hibernation and require sites with stable temperatures high humidity levels. Bats do not always use roosts in a predictable fashion and tree-dwelling species are notoriously nomadic and will move between a variety of different tree roost sites. By contrast maternity roosts tend to be the most loyally occupied from year to year, although again this differs between the different bat species.

Council Directive 92/43/EEC ("The Habitats Directive") is transposed into UK law through the Conservation of Habitats and Species Regulations 2017. Bats are a European Protected Species (EPS), and are listed in Annex IV of the Habitats Directive. This affords both the bats and their roosts with strict protection. Some bat species have a higher conservation concern in Europe. The habitats supporting these species can be designated as Special Areas of Conservation (SACs) and the bat species concerned are listed under Annex II of the Habitats Directive. Bats listed on Annex II include the greater and lesser horseshoe bats, the Bechstein's bat and barbastelle. Actions and activities that are prohibited by this legislation are:

- deliberate capture, injury or killing of a bat;
- deliberate disturbance of a bat and in particular disturbance which is likely to; impair their ability:
    - to survive, to breed or reproduce, or to rear or nurture their young, or
    - in the case of animals of a hibernating or migratory species, to hibernate or migrate;
    - or to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destruction of a breeding site or resting place;
- possessing, controlling transporting, selling or exchanging, or offering for sale or exchange, any bat or any part of a bat or anything derived from one.

Substantial penalties including fines and custodial sentences are now in place for offenders under the Conservation of Habitats and Species Regulations 2017.

The primary legislative Act covering wildlife in the UK is the Wildlife and Countryside Act 1981 (WCA), which affords protection to all bat species. The WCA has seen numerous amendments since it was brought into force, of which the most recent and arguably significant have been the Countryside and Rights of Way (CRoW) Act 2000, the Natural Environment and Rural Communities (NERC) Act 2006 and the Conservation of Habitats and Species Regulations 2017 (described above). The intentional or reckless damage of roosts or disturbance of bats is specifically prohibited under the WCA as amended. The offence of 'reckless' disturbance and damage is not contained within the Conservation Regulations and has thus been retained within WCA.

Because bats are known to use many roost sites on a regular basis year on year, legal precedent indicates that these roosts should be regarded protected regardless of whether bats are present at the time they are inspected. Legislative changes and amendments have now completely removed the defence of harmful actions being "the incidental result of an otherwise lawful operation" for EPS, which was previously afforded under the Wildlife and Countryside Act 1981 (as amended).

A number of British bat are described as being of ‘of principal importance for the purpose of conserving biological diversity’ under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC). The NERC Act places a specific ‘biodiversity duty’ upon all national and local government departments to ensure the conservation of Biodiversity.

The National Planning Policy Framework (NPPF) sets out the government’s planning policies for England and how they should be applied to achieve the over-arching goal of ‘sustainable development’.

5. QUALIFICATIONS & EXPERIENCE

Focus Environmental Consultants® has the expertise to provide sure-fire environmental solutions to a wide range of projects. The company ethos forges the highest standards of professional scientific practice with a best value approach for our clients. Our core area of expertise is in the production of specialist environmental reports and advice to support planning applications. Our comprehensive services include Preliminary Ecological Appraisals (PEA), Ecological Impact Assessment (EcIA), Habitat Regulations Assessment (HRA) and fulfilling protected species surveys, licensing and mitigation requirements. Focus Environmental Consultants is a CIEEM Registered Practice, with all ecological staff being members of this professional body. Our flexible approach, range of skills and broad project experience from major infrastructure contracts to small private developments allows us to adapt to your individual requirements. As well as offering a full suite of ecological services, Focus Environmental Consultants can provide expert arboricultural advice and reports and is building an enviable reputation for innovative habitat creation and management solutions. Focus Environmental Consultants is situated in Worcestershire, providing a convenient and central UK location.

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This report has been checked for quality and content by:

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Graham is an ecologist with over twenty years of experience in the field of applied ecology. He holds a BSc (Hons) degree in Zoology and an MSc with distinction in Law and Environmental Science. Graham's Masters paper on legal and practical implications for mammal reintroductions was published by the IUCN. His ecological experience includes surveys to identify nationally and locally important sites for wildlife, ecological services to local planning authorities and provision of ecological reports to accompany major infrastructure projects, housing schemes, industrial developments and mineral extraction. Graham is a skilled botanical surveyor (FISC 4) specialising in Phase I and Phase II (NVC) Habitat Surveys. Graham has considerable expertise in protected species surveys and licensing, and is a Registered Consultant under the Bat Mitigation Class Licence scheme (BMCL). Graham has appeared and delivered evidence as an expert witness for Planning Appeals and Public Inquiry. Graham has been interviewed for BBC local radio and TV programmes to

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