



Preliminary bat roost assessment & Emergence Surveys

Site Location	Brookfield Farm, Schoolpiece Lane, Church Broughton, DE65 5DH
Document reference	BFF001
Date of Survey	PRA: 24th September 2017 Emergence: 4 th May 2018, 22 nd May 2018 & 10 th June 2018 PRA Updated: 24 th October 2019
Surveyed by	Garry Smith [Class 2 registration 2017-28032-CLS-CLS]

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Validity of data

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

Executive Summary

Chase Ecology Ltd. undertook a Preliminary Roost Assessment (PRA) at Brookfield Farm, Schoolpiece Lane, Church Broughton, DE65 5DH, on 24th September 2017 followed by three emergence surveys on the 4th May 2018, 22nd May 2018 & 10th June 2018. An update to the PRA was carried out on the 24th October 2019.

The aim of the assessment was to consider the value and suitability of the structures for roosting bats & nesting birds as detailed below;

Site Location	Brookfield Farm, Schoolpiece Lane, Church Broughton, DE65 5DH
Survey Methodology	An internal & external survey was carried out on the 24th September 2017 & updated on the 23th October 2019 by Garry Smith for the potential roosting and usage of the structure for bats & nesting birds. See section 3 (Methodology). Additional to the visit further research has been carried out on the Magic.gov database and National Biodiversity Network Three emergence surveys were carried out on the 4th May 2018, 22nd May 2018 & 10th June 2018.
Results of Preliminary Bat Roost Inspection	Further emergence surveys were required which have been carried out on the 4 th May 2018, 22 nd May 2018 & 10 th June 2018.
Evidence of Nesting Birds	See Section 6.4 On the 4th May 2018, 22nd May 2018 & 10th June 2018 it was identified that Swifts (<i>Apus apus</i>) were nesting within the 1st floor areas to the two-storey section of the site.
Requirements for Additional Survey	<u>Nesting Birds</u> It is advised that whilst the nest is occupied that no disturbance is caused to this area and where works may start in late to early October a nesting bird survey may be required to confirm if still occupied. <u>Bats</u> No further survey requirements identified An update to the Preliminary Roost Assessment was carried out on the 24th October 2019 where no changes to the structure or value to bats was observed. See Appendix 2: Preliminary Roost Assessment (October 2019 updated)

Predicted Impacts of Development on Bats and Nesting Birds	Low impact if correct mitigation and enhancements are put into place during the Mitigation and development stages of works. See Appendix 3: Mitigation, Enhancement & Protection
Mitigation and Compensation of Proposed Impacts	Mitigation Licence requirements for the following roosts; 1 x Common Pipistrelle day roosts (Maximum count of 1 bats) 1 x Common Pipistrelle day roosts (Maximum count of 4 bats) 1 x Brown Long-eared feeding roost See Appendix 3: Mitigation, Enhancement & Protection
Required Actions	SEE SECTION 6.0 See Appendix 3: Mitigation, Enhancement & Protection

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1.0 Introduction

Brief

- 1.1** This report will present the findings of a preliminary bat roost assessment and nesting bird survey of the site located at Brookfield Farm, Schoolpiece Lane, Church Broughton, DE65 5DH following a site visit which took place on the 24th September 2017 and further research of the area online.
- 1.2** The PRA was updated on the 24th October 2019 where a site visit was completed to assess for any changes and new roosting values/evidence from bats.
- 1.3** Three emergence surveys were carried out on the 4th May 2018, 22nd May 2018 & 10th June 2018. Results see section 4.0

Site description

- 1.4** A single-story farm building constructed of both brick and timber with a fabricated roof structure. A single area to the building hosts a small two-storey brick building with a tiled roof. The site is set within a farm located within an open rural location.

Proposed works

- 1.5** For extensive development to the footprint of the current building

2.0 Legislation

- 2.1.1** All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2010 (as amended), making it an offence to:
- Deliberately kill, injure or capture a bat;
 - Deliberately disturb bats;
 - Damage or destroy a breeding site or resting place
- 2.1.2** In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly Obstruct access to any structure or place which any bat uses for shelter or protection; or Disturb any bat while occupying a structure or place which it uses
- 2.1.3** If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural Resources Wales, which would be subject to appropriate measures to safeguard bats.
- 2.1.4** In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended). All wild birds, their nests and eggs are protected it an offence to: • kill, injure, or take any wild bird; • take, damage or destroy the nest of any such bird whilst it is in use or being built; or • take or destroying an egg of any such wild bird.
- 2.1.5** Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

3.0 METHODOLOGY

- 3.1** All survey and reporting undertaken by Mr Garry Smith who is an experienced licensed bat ecologist in England [Class 2 registration 2017-28032-CLS-CLS] with over 8 years' experience practical of professional ecological surveys.
- 3.2** Preliminary roost assessments can be undertaken throughout the year and can provide conclusive results, which can save expense and time for Planning Applicants. The optimum time to investigate for the presence of bats is during their active season when signs of presence can be more easily located.
- 3.3** A thorough interior and exterior inspection of the building for bat roosting and potential roosting features was undertaken on the 24th September 2017. Signs surveyed for included droppings, dead bats, feeding remains (beetle, moth and butterfly remains), urine staining and grease marks around crevices and down walls, and any noises such as scratching and audible bat calls.
- 3.4** During the survey the surrounding area was assessed in relation to suitable habitat that may be of value to bats.
- 3.5** Surveys were conducted following "The Bat Workers Manual" (JNCC 2004), "The Bat Mitigation Guidelines" (EN 2004) and the Bat Conservation Trust 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (2016) recommendations.
- 3.6** All areas of the building internally were inspected with the aid of a 2 million c/p lamp and inspection camera. External features were also inspected where possible and observations were aided with binoculars where needed.
- 3.7** A desk top survey was also completed to establish the biodiversity of the area along with its habitat structures including statutory and non-statutory designations
- 3.8** Biological records were not obtained for this survey
- 3.9** Three Emergence surveys were carried out during the optimum survey period of May – August during optimal survey conditions and times.

4.0 Results

Desk Study

Environmental record search

4.1 A data search from the National Biodiversity Network was undertaken to assess the names species for distribution/record within a 1km study area which demonstrated NO records of any bats.

4.2 Designated sites; Statutory (5km)

Site	Designation	Distance (km)	Direction
HILTON GRAVEL PITTS	SSSI	2.4	SE
OLD RIVER DOVE, MARSTON ON DOVE	SSSI	4.4	S

Non-Statutory (2km)

Site	Designation	Distance (km)	Direction
NON IDENTIFIED			

Priority Habitat Inventory within 2km

HABITAT	Distance (km)	DIRECTION
DECIDUOUS WOODLAND	1	N
DECIDUOUS WOODLAND	1.1	NW
DECIDUOUS WOODLAND	1.1	NW
DECIDUOUS WOODLAND	1.6	SE
DECIDUOUS WOODLAND	1.6	N
WOODPASTURE & PARKLAND	1.8	NW

Non of the above names sites/locations would be effected in any way from the proposed development plan for this site, including both habitats and species.

4.3 Aerial photographs of the site were consulted to determine if there are important landscape features surrounding and within vicinity of the site.

4.4 A search of previous Granted European Protected Species (2km) Applications revealed NO granted European Protected Species application;

Field study

- 4.5** A site visit was completed on the 24th September 2017 by Garry Smith [Class 2 registration 2017-28032-CLS-CLS] where the dwelling and surrounding areas were assessed for the possible usages of bats & birds.

Date	Time	Temp (c)	Cloud cover
24-09-2017	10:00	14	80%

External

- 4.6** A full external assessment was carried out visually around the property including checks to the brick work, timber cladding & roof structures. Main areas of roof works consist of fabricated sheeting with vented areas along the ridge and gables. There are areas of timber cladding onto brick which have deteriorated greatly offering roosting opportunities. A two-storey area to the building hosts a variety of roosting opportunities with damage to the roof areas and deteriorated areas of brickworks.
- 4.7** The building is set on a farm within an open rural area with roosting and foraging habitats all around.

Internal

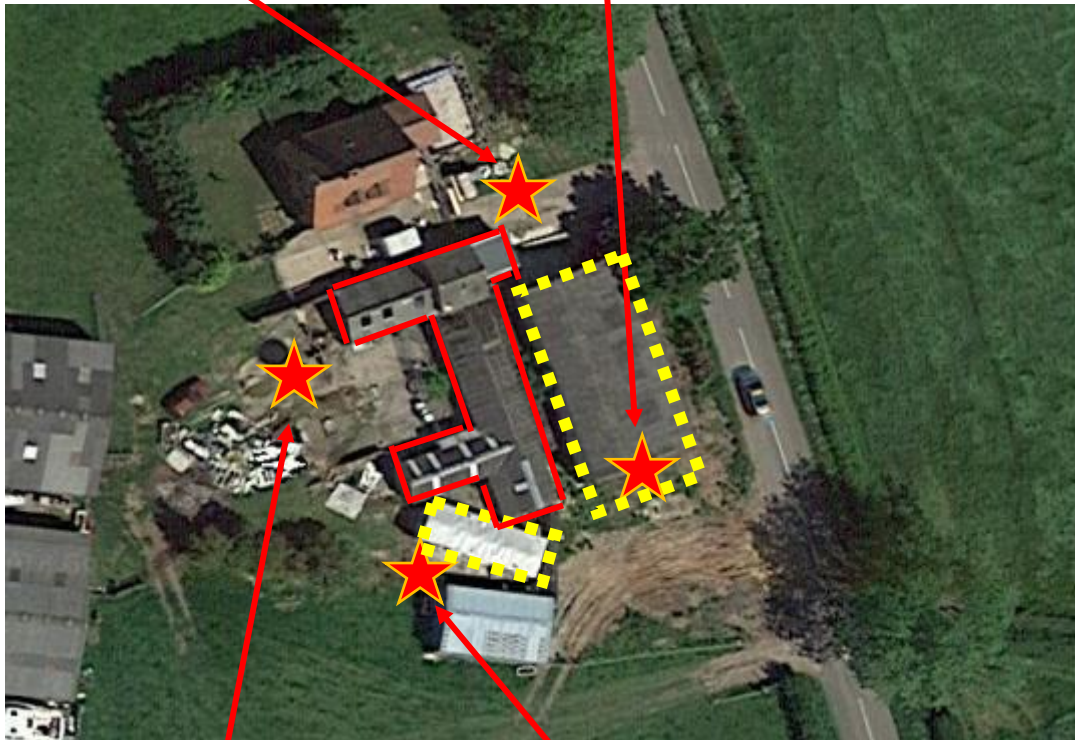
- 4.8** Internally The building offers a low-medium potential for roosting bats with several features within damaged brickworks and within timber cladded areas, a 1st floor area demonstrated evidence of droppings similar to those of Brown long-eared bats which were located under a timber beam giving opportunity as a feeding area.
- 4.9** Evidence of nesting birds within the structure including similar to those of the Hirundinidae family of birds.

Results of Phase 2 Activity Surveys

Below plan of survey positions for all emergence survey

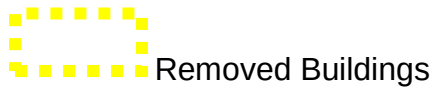
Survey Point 1

Survey point 2



Survey Point 3

Survey Point 4



Date: 4th May 2018

Sunset	Start Time	Finish Time	Temperature	Wind Beaufort Scale	Cloud Cover
20:39	20:20	22:30	14 Start, 12 End	1	10%

Point 1 – Diana Beecroft

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
20:20	Swift	2 Swifts emerging in and out of building via the open doorway to the 1 st floor area of the brick building	Visual
21:00	Swifts	Continuation of 1 – 2 Swifts emerging in and out of the open doorway to the 1 st floor area of the brick building	Visual
21:11	C Pip	Emerged from open doorway to 1 st floor area of brick building	Audio & Visual
21:14	C Pip	Emerged from open doorway to 1 st floor area of brick building	Audio & Visual
21:16	C Pip	Emerged from open doorway to 1 st floor area of brick building	Audio & Visual
21:18	C Pip	Emerged from doorway to ground floor of brick building, directly below the three above, possible same roost due to size of structure and limited roosting availability.	Audio & Visual
21:18	C Pip x2	Foraging between the building and main house briefly before commuting East	Audio & Visual
21:22	Bat (Possible Brown Long-eared)	Bat commuted from the rear of the buildings along the side of the building and emerged into the open doorway to the 1 st floor area of the brick building	Visual
21:25	C Pip	Brief foraging	Audio
21:25	Bat (Possible Brown Long-eared)	Emerged from the open doorway to the 1 st floor area of the brick building, possible same bat recorded at 21:22	Visual
21:32	Noctule	Single pass	Audio
21:35	C Pip	Brief foraging	Audio
21:45	Bat (Possible Brown Long-eared)	Foraging between the main house and building and possibly emerged into the 1 st floor area of the brick building	Visual
21:52	Noctule	Single pass	Audio
22:01	C Pip	Foraging & feeding	Audio
22:05	C Pip	Continuation of brief foraging	Audio
22:21	C Pip	Single pass	Audio

Point 2 – Garry Smith

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
21:07	Noctule	Single pass	Audio
21:14	C Pip	Single pass	Audio
21:17	C Pip	Foraging around areas to the front of the building (East) between the building and road	Audio & Visual
21:20	C Pip	Continuation of the above foraging & feeding across areas between the building and road	Audio & Visual
21:25	C Pip	Continuation of the above foraging & feeding across areas between the building and road	Audio & Visual
21:32	Noctule	Single pass	Audio
21:36	Barn Owl	Emerged from field East of the building and flew directly overhead towards the fields to the South/West	Visual
20:40	C Pip	Single pass	Audio
21:41	C Pip	Brief foraging & social calls	Audio
21:51	Noctule	Single pass	Audio
22:09	C Pip	Single pass	Audio
22:10	C Pip	Single pass	Audio

Point 3 – Scott Latham

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
21:17	C Pip	Emerged from ridge of long section of building which runs parallel to the road approx. 3 meters from two storey brick section	Audio & visual
21:18	C Pip	Foraging around the areas to the rear of the building then off West into the fields	Audio & visual
21:26	S Pip	Single pass	Audio
21:33	Noctule	Single Pass	Audio
21:51	Noctule	Single pass	Audio
21:53	N Pip	Single pass	Audio
21:54	C Pip	Brief foraging	Audio
22:16	C Pip	Brief foraging	Audio

Point 4 – Craig Davies

Equipment – Elekon Scanner, Peersonic recorder

Time	Species	Activity	Audio/Visual
21:20	C Pip	Brief foraging	Audio
21:23	C Pip	Brief foraging	Audio
21:23	C Pip	Foraging & feeding to South gable of building and across to the road and around to the East of the building	Audio & Visual
21:25	C Pip	Continuation of foraging & feeding to South gable of building and across to the road and around to the East of the building	Audio & Visual
21:32	Noctule	Single pass	Audio
20:40	C Pip	Single pass	Audio
21:41	C Pip	Brief foraging	Audio
21:51	Noctule	Single pass	Audio
22:09	C Pip	Single pass	Audio

Date: 22nd May 2018

Sunrise	Start Time	Finish Time	Temperature	Wind Beaufort Scale	Cloud Cover
05:01	03:16	05:16	12 Start, 12 End	1	20%

Point 1 – Garry Smith

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
03:43	Daubenton's	Single pass	Audio
03:46	Noctule	Single pass	Audio
03:53	Bat (Possible Brown Long-eared)	Foraging along the North facing elevation of the building briefly with no EL	Visual
03:55	C Pip	Foraging to grass area briefly to the front of the main house	Audio & Visual
03:58	C Pip	Single pass from road to rear of building along the drive between the building and main house	Audio & Visual
04:06	C Pip	Pass from rear to front between building and main house	Audio & Visual
04:08	C Pip	Brief foraging between the building and main house	Audio & Visual
04:10	C Pip x 2	Foraging close to the two-storey brick section of the building and around to the front of the building	Audio & Visual
04:10	C Pip	Emerged into 1 st floor area of brick section via the open doorway	Audio & Visual
04:11	C Pip	Emerged into 1 st floor area of brick section via the open doorway	Audio & Visual
04:28	Swift	Emerged from 1 st floor area of brick section via the open doorway	Visual

Point 2 – Craig Davies

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
03:46	Noctule	Single pass	Audio
03:56	C Pip	Brief foraging	Audio
04:09	C Pip	Single pass	Audio
04:25	C Pip	Foraging around the land between the building and road and across to the ridge area of the fabricated covering which runs parallel to the road	Audio & Visual

04:30	C Pip	Continuation of the above	Audio & Visual
04:32	C Pip	Emerged into ridge cover to fabricated roof which runs parallel to the road 4 sheets down from the two-storey brick structure	Audio & Visual

Point 3 – Scott Latham

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
03:28	N Pip	Single pass	Audio
03:56	C Pip	Brief foraging to rear of building and around to the front via the driveway between the building and main house	Audio & Visual
04:07	C Pip	Single pass	Audio
04:07	C Pip	Single pass	Audio
04:22	C Pip	Single pass	Audio
04:27	C Pip	Foraging across ridge area to fabricated roof parallel to the road	Audio & Visual
04:29	C Pip	Foraging across ridge area to fabricated roof parallel to the road	Audio & Visual

Point 4 – Annika Smith

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
03:46	Noctule	Single pass	Audio
04:27	C Pip	Single pass	Audio
04:30	C Pip	Brief foraging	Audio

Date: 10th June 2018

Sunset	Start Time	Finish Time	Temperature	Wind Beaufort Scale	Cloud Cover
21:30	21:15	23:15	16 Start, 14 End	1	10%

Point 1 – Garry Smith

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
22:06	C Pip	Emerged from open doorway to 1 st floor area of brick building	Audio & Visual
22:07	Noctule	Single pass	Audio
22:09	C Pip	Single pass from road through to rear of main house	Audio & Visual
22:11	N Pip	Single pass from road through to the rear of the site between the building and main house	Audio & Visual
22:17	C Pip	Foraging around the grass area between the main house and road	Audio & Visual
22:25	C Pip	Single pass	Audio
22:34	C Pip	Single pass	Audio
22:25	Noctule	Single pass	Audio
22:34	N Pip	Single pass	Audio
22:34	C Pip	Single pass	Audio
22:34	Noctule	Single pass	Audio
22:36	N Pip	Single pass	Audio
22:40	C Pip	Pass from rear to road between the building and main house	Audio & Visual
22:48	Noctule	Single pass	Audio
22:48	C Pip	Single pass	Audio
22:51	Noctule	Single pass	Audio
22:58	Bat (Possible Brown Long-eared)	Brief foraging around the hardstanding areas between the building and main house	Audio
23:04	Bat (Possible Brown Long-eared)	Brief foraging around the hardstanding areas between the building and main house	Audio

Point 2 – Craig Davies

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
21:59	Noctule	Single pass	Audio
22:18	Noctule	Passing from South to North above farm	Audio & Visual
22:11	Noctule	Single pass	Audio
22:15	C Pip	Single pass	Audio
22:29	Noctule	Single pass	Audio
22:37	C Pip	Single pass from road across to field South of the buildings	Audio & Visual
22:37	C Pip	Single pass from road across to field South of the buildings	Audio & Visual
22:45	C Pip	Single pass	Audio
22:59	C Pip	Pass across grass area between building and road from the south, brief foraging across the grass areas then travelled back South towards fields	Audio & Visual
23:05	Noctule	Single pass	Audio

Point 3 – Scott Latham

Equipment – Anabat Walkabout

Time	Species	Activity	Audio/Visual
22:11	Noctule	Single pass	Audio
22:11	N Pip	Pass from rear of house and across the face of the building heading South	Audio & Visual
22:24	C Pip	Single Pass	Audio
22:28	C Pip	Single Pass	Audio
22:29	Noctule	Single pass	Audio
22:35	C Pip	Single Pass	Audio
22:41	C Pip	Single Pass	Audio
22:46	Noctule	Single pass	Audio
22:47	C Pip	Pass from rear central area of fabricated roof area West and through to barns to rear	Audio & Visual
22:50	Daubenton's	Single Pass	Audio
23:05	Noctule	Single pass	Audio
23:09	C Pip	Brief foraging	Audio

Emergence Points

4th May & 22nd May 2018 – Common Pipistrelle (Maximum count of 1), Via gap between fabricated sheets and ridge cover



4th May, 22nd May & 10th June – Common Pipistrelle from within open section to 1st floor and above door below (Maximum count of 4). Several gaps within floor so possible of 1 roost within the building.



4th May – Brown Long-eared bat emerged into 1st floor area via open entrance at 21:22 and re-emerged at 21:25. Again entering the same location at 21:45 demonstrating signs of a feeding roost. 1st floor areas were re-inspected on the 10th of June where fresh signs of droppings were located to the floor area close to the wall to the left.



5.0 Plans & Photographs

East facing elevation of the single-storey building constructed with a fabricated sheet roof and areas of brick and timber cladding in a deteriorated state in places giving access/roosting opportunities for bats





North facing elevation of the single-storey & two-storey building showing a considerable amount of deteriorated areas giving access/roosting opportunities for bats



Damaged area of roofing cover to the two-storey area



Below timber single-storey building to the South of the structure in a deteriorated state giving access/roosting opportunities for bats, gaps behind timber cladding/boarding's and around roof



Below timber single-storey building to the South of the structure in a deteriorated state giving access/roosting opportunities for bats, gaps behind timber cladding/boarding's and around roof



Below internal roof area to two-storey brick area where a small number of droppings similar to those of Brown long-eared bats were located below a timber beam. Open access to the building along with several areas of damage to the roof structure



Internal views of the single-story areas which house limited areas within the roof structures for roosting, these areas are also visibly well-lit during the day time from natural light



Internal views of the single-story areas which house limited areas within the roof structures for roosting, these areas are also visibly well-lit during the day time from natural light



6.0 Conclusion and recommendations

All recommendations provided in this section shall be on Chase Ecology Ltd's current understanding of the site proposals and current planning application, correct at the time the report was compiled. Should any aspect of the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate

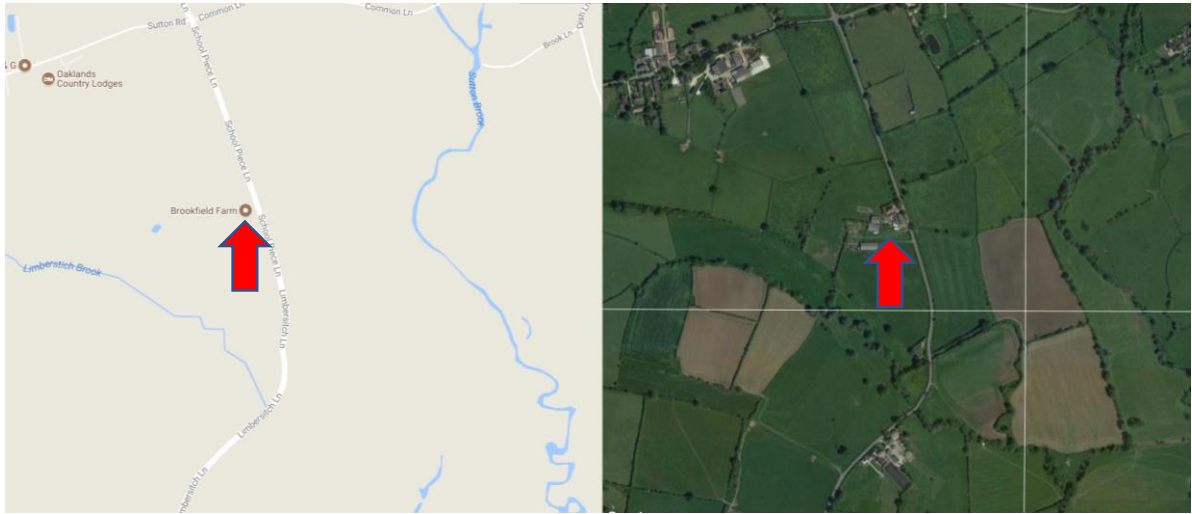
- 6.1** Following the preliminary bat roost assessment carried out on the 24th September 2017 and Emergence surveys on the 4th May 2018, 22nd May 2018 & 10th June 2018 it is apparent that Common Pipistrelle are roosting within the identified areas within Section 4.0 of this report.
- 6.2** On the 4th May 2018 it was identified that a single Brown Long-eared bat was using the 1st floor area of the two-storey section for a possible feeding roost where further fresh droppings were noted to the floor area on the 10th June 2018.
- 6.3** The site demonstrated localised populations of bats both commuting through and foraging within the environment surrounding the buildings.
- 6.4** On the 4th May 2018, 22nd May 2018 & 10th June 2018 it was identified that Swifts (*Apus apus*) were nesting within the 1st floor areas to the two-storey section of the site. It is advised that whilst the nest is occupied that no disturbance is caused to this area and where works may start in late to early October a nesting bird survey may be required to confirm if still occupied.
- 6.5** Mitigation Licence requirements for the following roosts;
- 1 x Common Pipistrelle day roosts (Maximum count of 1 bats)
 - 1 x Common Pipistrelle day roosts (Maximum count of 4 bats)
 - 1 x Brown Long-eared feeding roost

See Appendix 3: Mitigation, Enhancement & Protection

7.0 References

- Mitchell-Jones, A.J, & McLeish, A.P. Ed., (2004) 3rd Edition Bat Workers' Manual. Joint Nature Conservation Committee, Peterborough.
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. Natural England, Peterborough.
- British Trust for Ornithology (2016) www.bto.org/
- Magic database (2017) <http://www.magic.gov.uk/MagicMap.aspx> accessed on 08/03/2017.
- Google Earth (2017)

Appendix 1: Location plan



Appendix 2: Preliminary Roost Assessment (October 2019 updated)

- A site visit was carried out on the 24th October 2019 to re assess the building for any changes/new value to bats.
- A full external walkover around the property demonstrated no changes to the structure and all previous observations of value to bats & birds were unchanged.
- Internally the building was fully assessed where no change was noted.
- The use of inspection cameras was used both internally & externally to assess for any additional roosting where no new evidence from bats was observed.
- The internal features where bats were observed to have been roosting during the surveys throughout 2018 were assessed with the aid of an inspection camera where evidence including droppings were seen but no current bats roosting. Droppings were observed scattered across 1st floor area (20 approx) with a number of droppings observed within a small crevice within the stoneworks.
- Evidence of feeding remains from Brown Long-eared bats was observed throughout the building which has displayed similar characteristics from previous surveys.

Appendix 3: Mitigation, Enhancement & Protection

This document must be available to all involved in the planned development. All contractors must be aware of the potential of protected & priority species being found on site and care should be taken during works to avoid harm (including during any tree works), if protected species are found then all work should cease and an ecologist should be consulted immediately.

If any protected species are identified during development the client must contact an experienced ecologist and all works must stop until a full assessment has been carried out.

Mitigation Requirements

- During the three surveys a total of four roosts were observed;
 - 1 x Common Pipistrelle day roosts (Maximum count of 1 bats)
 - 1 x Common Pipistrelle day roosts (Maximum count of 4 bats)
 - Brown Long-eared x 1 feeding roost (Max count 2 bats)
- An EPS Mitigation Licence from Natural England will need to be applied for when planning has been granted and before any disturbance is offered to the recorded roost areas within the house.
- During all mitigation works a licenced ecologist will supervise both destruction and disturbance to each roost under the mitigation licence.
- As part of mitigation works, suitable compensation and reinstatement of roosts will be required to meet licence requirements with Natural England. See *Below*
- Mitigation will be carried out during November to April inclusive as the building offers no Winter roosting value.
- As part of the mitigation process a further level of monitoring shall take place, usually 2 years if required.
- As part of enhancement, two bat access tiles will be installed to the roof coverings. This will offer access to crevice dwelling bats between the tiles & felt membrane coverings to further enhance the structure for bats. See *Below*
- The use of breathable roof membranes would be prohibited from use to the section of roof coverings where the two bat access tiles will be introduced as

these have been proven to cause entrapment to bats and not recommended by The Bat Conservation Trust or Natural England. We would only recommend the use of felt membranes.

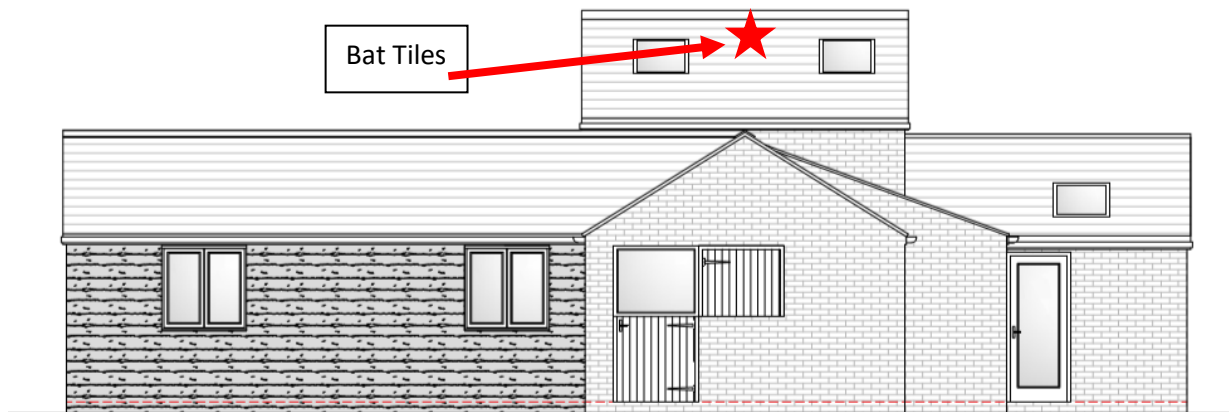
Below Mitigation plan for bat boxes within the site, to be installed before all mitigation works progress to the roof coverings. All boxes will remain as a permanent fixture to offer additional enhancement to the site.



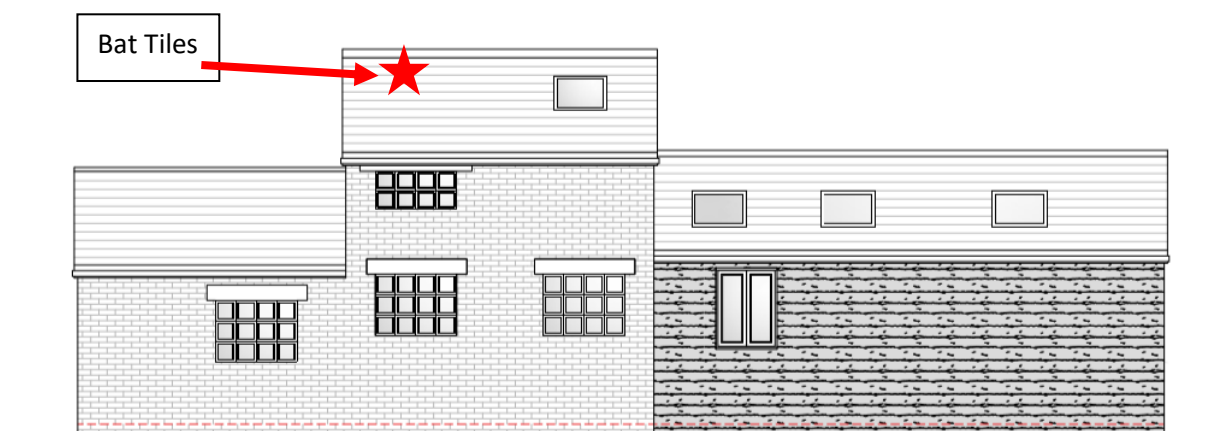
- ★ Small Woodstone Bat Box x 2, these will act as a mitigation support and remain as a permanent fixture to offer additional enhancement for crevice dwelling bats.
- ★ Large Multi Chamber Woodstone Bat Box x 1, this will act as a mitigation support and remain as a permanent fixture to offer additional enhancement for void dwelling bat

Enhancement within new development

Below location for the installation of two bat access tiles which will offer enhancement to crevice dwelling bats such as Common Pipistrelle which have been observed to be using the site for both roosting & feeding. This will offer daytime roosting value between the tiled coverings and felt membrane below.



SIDE A ELEVATION



SIDE B ELEVATION

Brown Long-eared bat feeding roost installation

It has been agreed that a feeding roost would be introduced within a barn which is located directly to the west of the structure which would offer additional site enhancement for bats such as Brown Long-eared which can use the new feature for both feeding & roosting.

The feeding roost box would be constructed from 18mm ply which would be raised up into the underside roof coverings to the barn at the far West gable elevation with an access point of 250mm x 100mm which would be 300mm from the top.

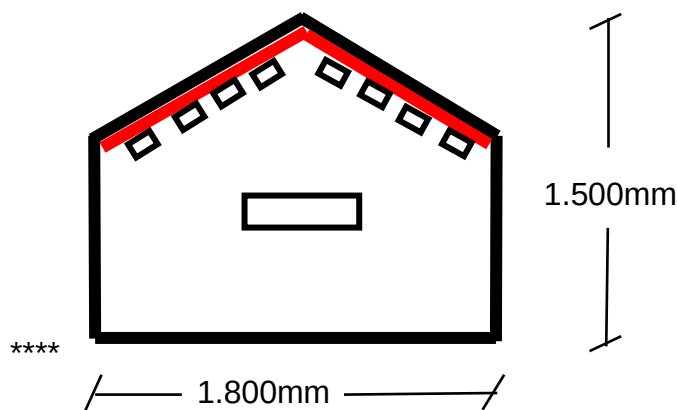
Roost dimensions;

Height 1.500mm

Width 1.800mm

Length 2.300mm

The underside coverings within the box would be of felt membrane & untreated rough sawn timber lath as per diagram below;



- The above mitigation measures and requirements will meet the licencing requirements for the level of bat roosts to be disturbed by the planned development.
- Following completion of the development the names ecologist will carry out a site visit to assess all mitigation requirements for enhancement have been met.

Protection Measures

Lighting

It is recommended that during the development process the levels of lighting such as security floodlighting and lighting around working platforms should be limited to reduce the level of disturbance caused to bats which have been recorded to be using the site for both commuting and feeding.

Disturbance caused by high power lighting can cause disturbance to common commuting and foraging areas currently used by bats.

It is advised that all works should be carried out during the hours of daylight to further reduce the levels of disturbance caused to bats and other nocturnal wildlife in the surrounding environment.

Protection of Wildlife

During the development stage all excavations if any should be closed where possible to prevent entrapment of wildlife such as mammals which may use the site during the hours of darkness for commuting.

For excavations which require to be left open a shallow slope should be in place to aid escape.

Any pipes over 200mm in diameter should be capped off at night to prevent animals entering.

Consideration should be given to longstanding storage of materials on site and where possible use the hardstanding areas to limit the disturbance to the surrounding environments.

Nesting Birds

Although no nesting activities were demonstrated within the building where development will take place consideration and protection must be implemented during March to September to prevent disturbance

If nesting birds are identified during this time which may face disturbance from any planned works the client should seek advice from an experienced ecologist.

General Recommendations for Enhancement

In addition to any specific required to compensate for impacts on protected species or habitats, both national and local planning policy encourages ecological enhancement in all development.

Based on the existing ecological value of the site and information available about the proposed development, consideration should be given to the use of native species or

those with recognised benefit to wildlife in areas of soft landscaping to enhance the value of the site for wildlife if suitable to the development.