fauna forest ecology ltd

Protected Species Survey for Bats

Lot 2 Beehive Farm, Harvey's Lane
Kingsley Moor, Stoke-on-Trent
Staffordshire
ST10 2EN

Fauna Forest Ecology Limited
October 2017

Prepared for Jane Chadwick

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Summary

- Fauna Forest Ecology Limited were commissioned to carry out a preliminary bat roost assessment (daytime survey) and two bat activity surveys (nocturnal surveys) at a site known as Lot 2 Beehive Farm, Harvey's Lane, Kingsley Moor, Stoke-on-Trent, Staffordshire, ST10 2EN. The site is located at approximate National Grid Reference: SJ 99431 46566.

- Within the site boundary, there are five buildings.

- The development proposals are to convert two barns into residential dwellings within their original footprint. In addition, a large modern agricultural barn is to be demolished.

- Bat surveys were undertaken to inform a planning application for the development proposals.

- Common nesting birds were also surveyed for during the daytime assessment.

- This report confirms the survey results and potential ecological impacts with the proposed works.

- The development proposals are considered to be small-scale. No local designated sites will be impacted provided that waste is disposed of appropriately.

- Surrounding habitat is predominantly grazed pasture fields coupled with mature trees and a network of hedgerows that connect the site to the wider environment.

- All surveyed buildings hold low suitability to support roosting bats.

- No evidence was found during the daytime assessment to suggest bats are or have utilised the buildings for roosting purposes.

- Following the daytime assessment, two nocturnal bat surveys were carried out. In August 2017 a dusk emergence survey was undertaken and in September 2017, a dawn re-entry survey was carried out. Five surveyors were used for each activity survey to ensure that all building aspects could be covered at any one time.

- No bats emerged from or re-entered any of the surveyed buildings during the suite nocturnal surveys.

- Active barn swallow *Hirundo rustica* nests were discovered in all three buildings.

- No further bat survey effort is required in order for development to lawfully proceed.

1. INTRODUCTION

1.1.1 Fauna Forest Ecology Limited were commissioned to carry out a preliminary bat roost assessment (daytime survey) and two bat activity surveys (nocturnal surveys) at a site known as Lot 2 Beehive Farm, Harvey's Lane, Kingsley Moor, Stoke-on-Trent, Staffordshire, ST10 2EN. The site is located at approximate National Grid Reference: SJ 99431 46566.

1.1.2 The development proposals are to convert two barns into residential dwellings within their original footprint. In addition, a large modern agricultural barn is to be demolished.

1.1.3 Ecological consultant David Nixon (Natural England bat licence number: 2015-18322-CLS-CLS Level 2) conducted the daytime scoping assessment on Friday 25th August 2017.

1.1.4 A dusk emergence survey was carried out on Saturday 26th August 2017 and a dawn re-entry survey was completed on Monday 11th September 2017.

Site Location

1.1.5 Located in a rural setting, the site is approximately 1.5km south-west of Kingsley and 3.4km north-west of Cheadle. The city of Stoke-on-Trent is situated approximately 12km to the south-west. Figure 1 shows the surrounding landscape and figure 2 shows the site boundary.

Site Description

1.1.6 The site is a typical agricultural setting, predominantly surrounded by grazed pasture fields that are coupled with mature trees and a network of hedgerows that are well-connected to the wider environment. Access to the site is via Harvey's Lane. Onsite, the buildings are surrounded by species-poor scrub and hard standing.

Site Buildings

1.1.7 There are five buildings within the site boundary. Three of these buildings were surveyed as they are subject to the proposed development. For the purpose of this report, the survey buildings are referred to as Buildings 1 – 3.

Building 1

1.1.8 Constructed using timber and steel framework, this modern agricultural barn is open-fronted, covered with corrugated metal sheeting and clad with vertical timber panels. Farming equipment and hay bales are stored inside the building.

Building 2

1.1.9 This building is a single storey brick-built barn with a steel-framed pitched roof that is covered with corrugated asbestos sheeting. A small utility room with a flat roof covered with felt adjoins the north-east facing aspect. This building was formally used to house cattle.

Building 3

1.1.10 Constructed using concrete blocks, Building 3 is a single storey barn with a pitched steel-framed roof that is covered with corrugated metal sheeting. Internally, the building was previously used to store domestic and agricultural machinery.

Building 4

1.1.11 Located adjacent to the northern elevation of Building 1, this small stable block was built using concrete blocks and covered with a flat felt roof. Building 4 was not surveyed, as the proposed development

works will not impact it.

Building 5

1.1.12 This building is a small shed located near the site entrance gate. Built with concrete, this small structure has a pitched roof that is covered with corrugated asbestos sheeting. This building was not surveyed as it will not be affected by the proposed development.

Survey Objectives

- Assess the ecological value of the structures subject to the proposed development
- Identify if bats and birds are or have been present in the buildings
- Identify the potential negative impact such development might have on bats and nesting birds
- Determine the level of compensation or mitigation measures required, in order for development to lawfully proceed

Figure 1. Red marker points to the approximate location of the proposed development site. Map shows surrounding habitat and landscape.

(Satellite mage taken from Google Earth Pro: ©2017).

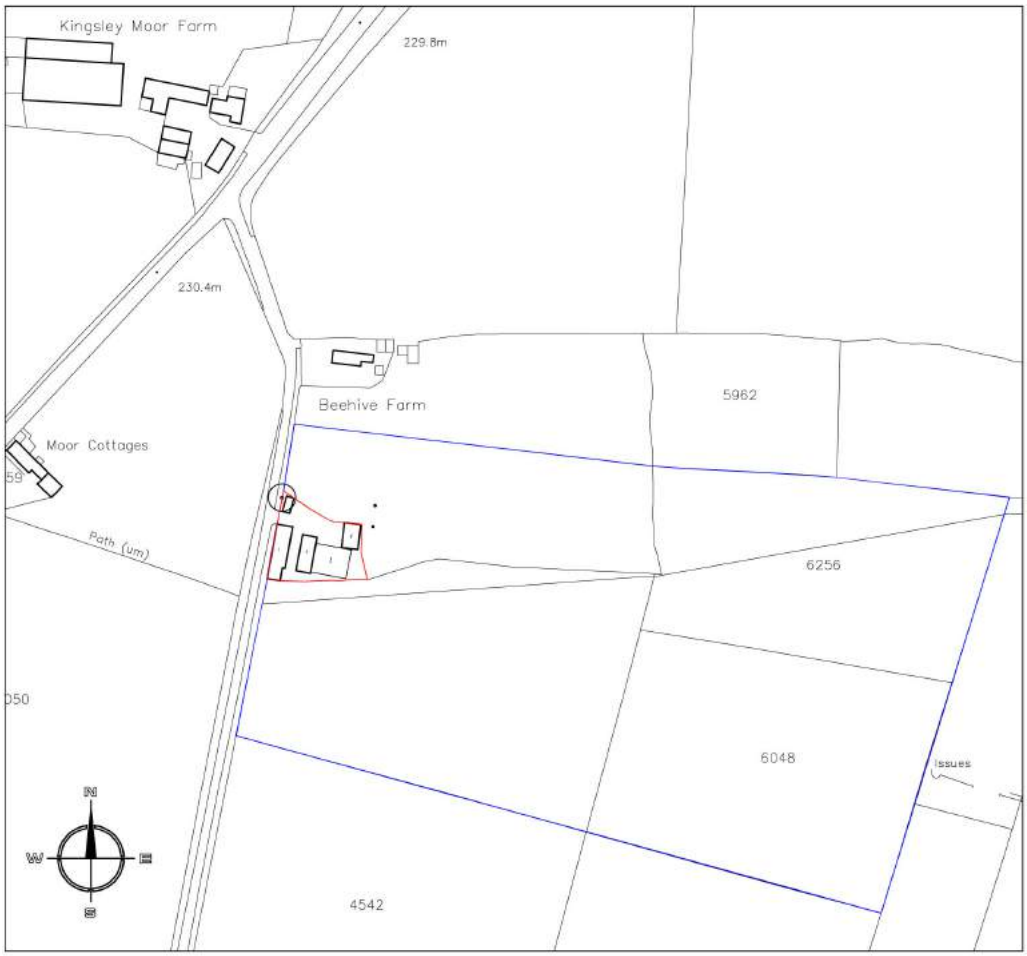

Figure 2. Map demonstrating site location (red line is representative of site boundary).

Limitations

Survey Limitations	Solution/Justification
Bat droppings deposited in or around the exterior degrade fairly quickly due to weather. The presence of bats or their roost must not be disregarded in the absence of droppings	Primarily, the internal aspects offer most value to roosting bats. Nocturnal surveys were carried out to identify emergence/re-entry and bat movement.
Ladders were not used to closely inspect the roof as it appeared unsafe	Binoculars were used to inspect areas not accessible for close inspection.

2. METHODOLOGY

Daytime Survey

2.1.1 The preliminary survey comprised two parts: a desktop study and a site visit. Biological records, including local bat records were obtained from Staffordshire Ecological Record.

2.1.2 The proposed development is unlikely to have a negative impact on local sites or protected species.

2.1.3 The site was searched using visual encounter survey techniques. Potential bat movement corridors and likely movement barriers were assessed and noted. These activities were not limited solely to the site and the surrounding area was also investigated.

2.1.4 During the site visit, where possible, all areas of the buildings were internally and externally examined for evidence of bats. The building survey included an internal and external assessment as follows: The surveyor used a powerful torch and endoscope to inspect all areas.

2.1.5 Internal survey: The internal rooms were fully assessed using a powerful torch beam to scan the walls and flat surfaces for droppings and other signs of bat activity. Feeding remains such as moth and butterfly wing concentrations were also surveyed for. All holes and crevices considered by the surveyor as likely to be used as a bat roost were examined to ascertain presence or absence of bats.

2.1.6 External survey: Visual ground inspections of all elevations were undertaken using binoculars. Photographs were taken, capturing likely features of ecological value to bats and birds i.e. missing tiles, damaged or missing mortar, exposed gable ends, gaps within soffit board, rotten timber, raised flashing and other potential entry points.

2.1.7 Other external aspects of the buildings were surveyed, including windows, window sills, external doors and the ground within close proximity of each structure was thoroughly inspected for bat droppings and feeding remains.

Methodology used was in line with standard guidance from Bat Conservation Trust[1].

Nocturnal Surveys

2.1.8 Two nocturnal bat activity surveys were carried out to support this report. A dusk emergence survey was carried out on Saturday 26th August 2017 and a dawn re-entry survey was completed on Monday 11th September 2017. All nocturnal surveys were completed in optimal conditions (see below in Table 3) at a time of year when bats are active.

2.1.9 Dusk emergence survey effort on Saturday 26th August 2017 was carried out by experienced bat surveyors: David Nixon, Martin Kessel, Harry Sims, Nathan Rimmer and Dan Cliffe.

2.1.10 The dawn re-entry survey was undertaken by David Nixon, Nathan Rimmer, Sophie Gordon, Dan Cliffe and Harry Sims.

2.1.11 Surveyors took up separate positions surrounding the building for 15 minutes prior to and for 1.5 hours after sunset for the dusk emergence survey and 1.5 hours prior to and 15 minutes after sunset for the dawn re-entry survey. At any one time between the surveyors, all areas of the roof and external area of the buildings deemed to hold risk were being observed. Visual observations of bat activity were noted and bat species were identified using bat detectors. Information recorded included weather, timings, whether bats emerged from or entered the buildings, direction of travel, species and activity e.g. foraging or commuting.

[1] Collins, J. (ed.) (2016) *Bat surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition.* The Bat Conservation Trust, London.

Table 1: shows surveyors names and equipment used.

Surveyor	**Equipment used**
David Nixon	Batbox Duet, EM Touch PRO 2, Magenta Bat 5, Anabat Express
Martin Kessel	Batbox Duet, Magenta Bat 5
Harry Sims	Batbox Duet, EM Touch PRO 2, Magenta Bat 5
Dan Cliffe	Magenta 5
Nathan Rimmer	Batbox Duet, Magenta Bat 5
Sophie Gordon	Magenta Bat 5

Figure 3: shows positioning of surveyors during nocturnal surveys. White 'X' symbols show position, yellow arrows show areas covered

(Image taken from Google Earth Pro: ©2017).

Common Nesting Bird Survey

2.1.12 Where possible, the buildings were surveyed for evidence of common nesting birds. Artificial light was used to search for birds, dead birds, dead chicks, nesting material and eggs. Endoscopic equipment was used to survey small cracks within timber, metal sheeting, mortar, damaged bricks, gaps and holes in joist & ridge beam sockets and any other features of ecological value to common nesting birds.

3. RESULTS

Desk Study

3.1.1 The desk study looked at current publicly available data. An electronic desktop search using all freely available resources was completed.

Designated Statutory Site Search

3.1.2 According to the MAGIC website, there are no internationally designated statutory sites within 10km of site and there are two nationally designated statutory sites within 2km of Site.

Table 2: Designated statutory sites within 2km of site

Site Name	Designation	Distance	Direction	Description/Relevant Information
Churnet Valley	SSSI	1.8km	N/E	The Churnet Valley SSSI, lying to the north of Cheadle, includes the steep-sided main valley of the River Churnet and a number of tributary valleys. These valleys retain the largest remaining concentration of semi-natural ancient woodland in Staffordshire, intermixed with scrub, unimproved neutral and acid grassland and large areas of mire, marsh and carr. The area supports an outstanding assemblage of woodland birds.
Consall	LNR	1.1km	N	Variety of habitats, woodland and grassland. There are 3 different nature trails with increasing difficulty which highlight the flora and fauna found here.

SSSI – Site of Special Scientific Interest LNR – Local Nature Reserve AONB – Area of Natural Beauty

3.1.3 It is not considered that any nearby protected sites will be impacted by the small-scale development proposals. In addition, the proposed works are unlikely to bear impact on the surrounding protected areas or species outside of the site boundary.

Habitats Search

3.1.4 MAGIC website suggests that several blocks of deciduous woodland are located within a 2km radius of the development site

Table 3: Habitats within 2km of site

Habitat Type	Distance	Direction	Description/relevant information
Traditional orchards	1,760m	E	No young trees
Ancient woodland	583m	NW	Ancient & semi-natural woodland
Good quality semi-improved grassland	1,950m	NE	Woodland pasture & parkland
Woodpasture & Parkland (BAP)	1,900m	N	Mixed Mainly Conifer
Deciduous woodland	167m	E	Broadleaved
Lowland dry acid grassland	1,300m	NE	English Nature Lowland Grassland Inventory
Lowland fens	1,700m	NE	The SBI Resurvey of Staffordshire Moorlands

Local Biological Data Search Results

3.1.5 Local biological records (including bats) were obtained from Staffordshire Ecological Record. Results from the search are shown below in figure 4.

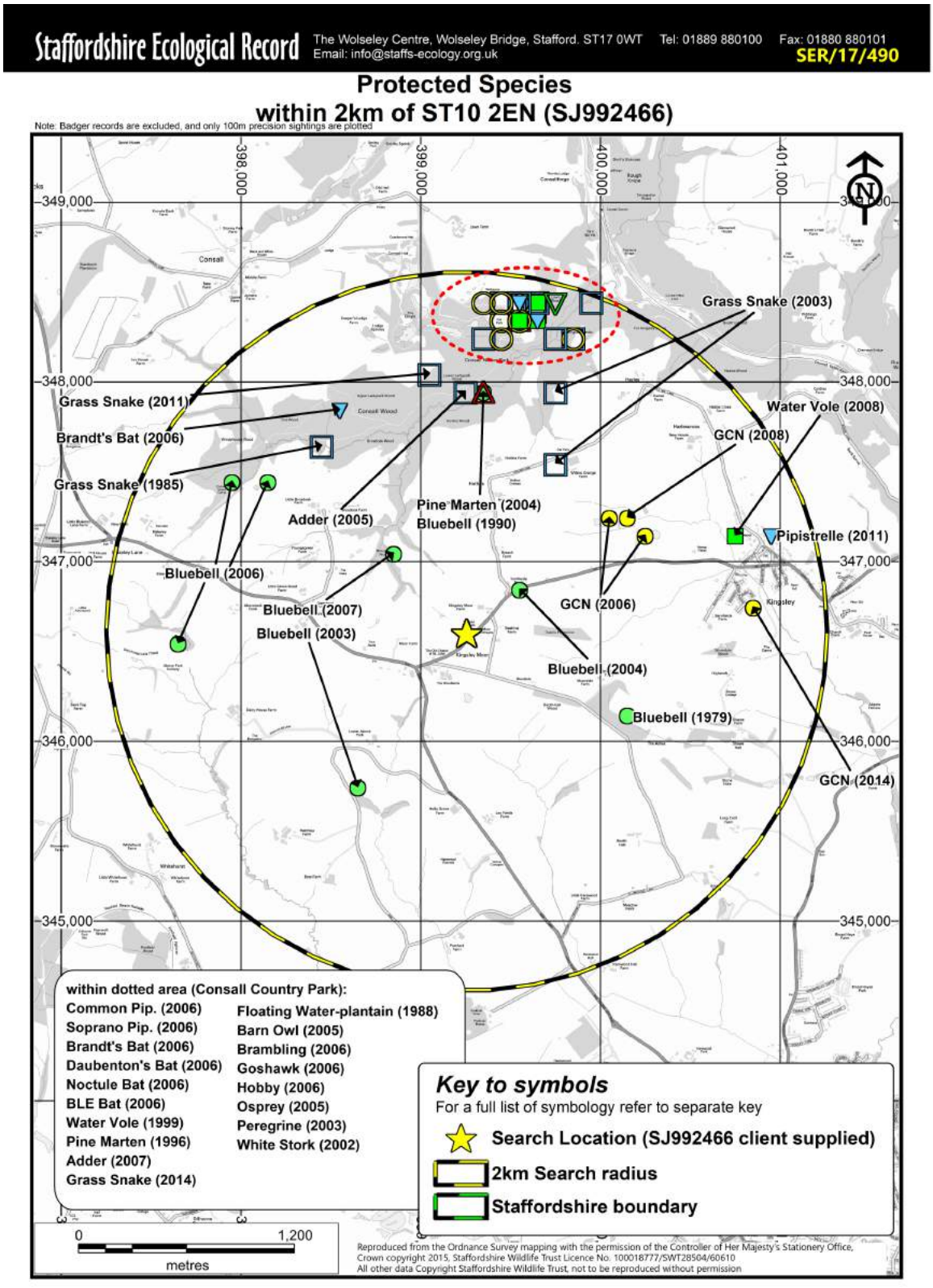

Figure 4: shows protected species records within 2km radius of survey site.

Daytime Survey Results

3.1.6 Daytime survey effort was carried out on Friday 25th August 2017 by experienced ecological consultant David Nixon (Natural England Class Licence Level 2 (bat) – 2015-18322-CLS-CLS following the desk study, which used satellite images and data resources. Permission to survey the site was arranged by the client. Weather conditions during the site visit were good: (sunny, 21°C).

Surrounding Habitats

3.1.7 Surrounding habitats including patches of ancient woodland that are well connected by a network of mature hedgerows provide suitable foraging, commuting and roosting value to bats and other wildlife.

Building 1

3.1.8 This structure is open-fronted, offering unrestricted access. Gaps between the corrugated metal roof sheeting and timber cladding are large enough for crevice-dwelling bats to enter, however given the barn's draughty conditions coupled with likely inconsistent temperature fluctuations, there is little chance that any bat species will utilise the structure for daytime, breeding or hibernation roosting. The steel and timber roof structure offers suitable perch-feeding opportunity (night roosting) for void-dwelling species such as brown long-eared *Plecotus auritus* and Natterer's, *Myotis nattereri* bats.

Building 2

3.1.9 Access could be gained via open windows located along the north-west and south-east elevations. Furthermore, there are gaps along the ridge, between the corrugated metal roof sheeting and under the fascia. The external brickwork is in good condition and well-appointed, offering little in the way of roosting opportunity for bats. Internally, daylight could be seen shining through the roof and between the doors. Void-dwelling bat species could potentially use the steel framework for perch-feeding purposes. This building is not suitable for a maternity bat roost.

Building 3

3.1.10 During the survey, gaps were noted between the doors, guttering, fascia and steel cladding, which could be suitable for use by crevice-dwelling bats. Internally, void-dwelling bats could utilise the steel roof structure for perch-feeding. This building is not suitable for a maternity bat roost.

Nocturnal Survey Results

3.1.11 No bats emerged or entered any of the surveyed buildings over the suite of nocturnal surveys. Survey conditions are shown below in Table 4 and survey results and notes are listed in Table 5.

Table 4: Nocturnal survey summary

Date	Start	Finish	Sunrise/Sunset	Temp °C	Wind	Cloud	Rain	Notes
26/08/2017	19:45	22:00	20:11	17	Calm	30 %	Dry	N/A
11/09/2017	04:40	06:55	06:36	13	Calm	100%	Dry	N/A

Table 5: Nocturnal survey Results

Date	Time	Species	Activity/Notes
26/08/2017	20:21	Common pipistrelle	Brief distant pass – audio only
	20:41	Noctule	Commuting from the north east to the south west
	21:17	Noctule	Commuting over high in an easterly direction

	21:47	Common pipistrelle	Brief audio recording – bat not seen
11/09/2017	06:20	Common pipistrelle	Foraging high above – flew in a westerly direction
	06:33	Common pipistrelle	Flew over high - commuting
	06:40	Soprano pipistrelle	Commuting in a southerly direction

Common Nesting Bird Survey Results

3.1.12 Disused barn swallow nests were discovered in all three buildings during the daytime survey.

4. DISCUSSION AND RECOMMENDATIONS

Conclusions

4.1.1 During the daytime survey, no evidence was discovered to suggest that bats utilise any of the three surveyed buildings for the purpose of roosting.

4.1.2 All three buildings offer potential perch-feeding/night roosting opportunity for void-dwelling species such as brown long-eared and Natterer's bats. Building 1 offers little in the way of suitable daytime roosting opportunity however gaps and crevices between the fascia, metal roof sheeting, ridge and apex regions of Buildings 2 and 3 are suitable for use by crevice-dwelling bats. None of the buildings are considered suitable for breeding bats.

4.1.3 All three buildings are considered to hold low potential for roosting bats.

4.1.4 No bats were seen to emerge or re-enter any of the three buildings during the nocturnal surveys.

4.1.5 As the survey buildings were only considered to hold low suitability for roosting bats and no evidence was discovered to suggest bats roost within these structures, Fauna Forest Ecology Limited recommend no further survey effort.

Actions

4.1.6 Buildings 4 and 5 were not surveyed as Fauna Forest Ecology Limited were advised by the client that they will not be impacted by the proposed development. Bat surveys **will** be required if these buildings are subject to any future development.

4.1.7 As evidence of nesting birds was discovered, the building works should commence outside of the bird-nesting season, which generally runs from late February to late August. If works are planned within this period, they **must** only be conducted following an ecologist's assessment to confirm the absence of nesting birds.

4.1.8 If a bat is discovered while the proposed development is being undertaken, work should stop immediately. Licenced bat ecologist David Nixon should be contacted on: 07917765464. If you are not able to reach David, contact The Bat Conservation Trust: 0845 1300 228. Further work cannot lawfully proceed without confirmation from Natural England. Do not handle bats for legal and Health & Safety purposes.

Recommendations

4.1.9 A low-level lighting scheme should be implemented during and after construction to avoid indirect disturbance to foraging and commuting bats, birds and small mammals.

4.1.10 We recommend that breathable membranes such as Tyvec are not used in any of the new building structures as bats can get tangled in the membrane and die.

4.1.11 Any landscaping planting should use native plant species that will enhance the ecological value of the site for local populations of invertebrates, birds, bats and small mammals.

4.1.12 If any trenches dug during works activities are left open over night, they should be left with a sloping end or ramp to allow any badgers or other animals that may fall in to escape. Holes should be covered over at night. Also, any pipes over 200mm in diameter should be capped off at night to prevent animals entering.

4.1.13 We recommend that 1X Schwegler 1FF Woodcrete Rectangular box (43cm X 27cm) and two Schwegler Woodcrete General Purpose boxes (33cm X 16cm) are installed on nearby mature trees with a view to offer roosting opportunity for bats. In addition, we suggest that swift boxes are incorporated to the side elevations of the new buildings.

5. REFERENCES

5.1.1 Collins, J. (ed.) (2016) *Bat surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition.* The Bat Conservation Trust, London.

5.1.2 Harris S and Yalden DW (Eds) (2008) Mammals of the British Isles: Handbook, 4th Edition Mammal Society

5.1.3 National Biodiversity Network website: http://www.nbn.org.uk/

5.1.4 Magic Information: http://magic.defra.gov.uk/

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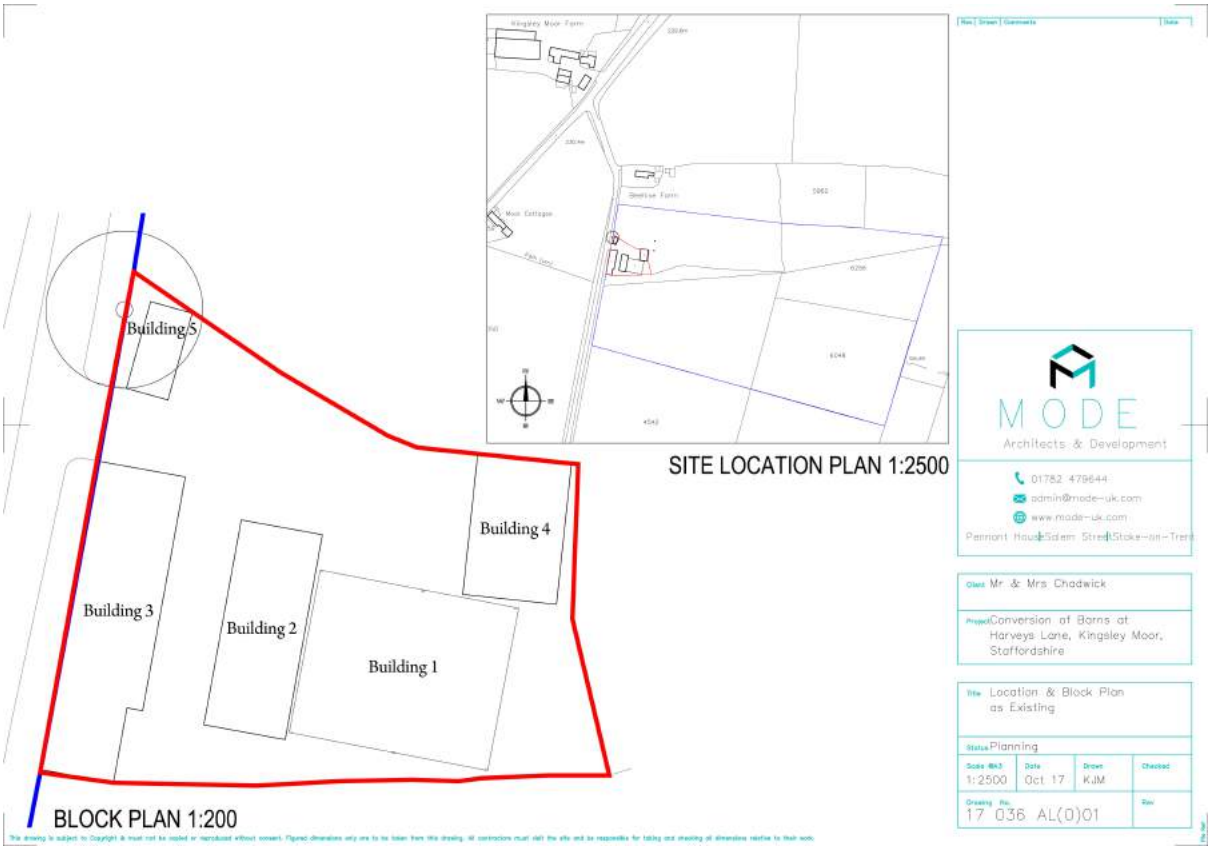
APPENDIX I: SITE PLAN



APPENDIX II: LEGISTLATION

In England and Wales, bats and their roosts are protected under the Conservation of Species and Habitats Regulations 2010 (as amended), and the Wildlife & Countryside Act 1981 (as amended).

Taken together, this legislation makes it an offence to:

- Deliberately capture (or take), injure or kill a bat
- Intentionally or recklessly disturb a group of bats where the disturbance is likely to significantly affect the ability of the animals to survive, breed, or nurture their young or likely to significantly affect the local distribution or abundance of the species whether in a roost or not
- Damage or destroy the breeding or resting place of a bat
- Possess a bat (alive 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 (alive or dead) or parts of bats

A roost is defined as being 'any structure or place that is used for shelter or protection', and since bats regularly move roost site throughout the year, a roost retains such designation whether or not bats are present at the time.

APPENDIX III: IMAGES

Image 1: Red lines highlight Building 1, yellow lines highlight Building 2.

Image 2: Yellow lines highlight north-eastern facing elevation of Building 2.

Image 3: Is representative of Building 3.

Image 4: Shows steel framework construction of Building 1 and stacked hay bales.

Image 5: Shows internal aspects of Building 2. Note the steel framework and corrugated asbestos roof cover.

Image 6: Shows the north-west and south-west facing elevations of Building 2.

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