



fauna forest ecology ltd

BAT SURVEY REPORT

Nigel Edwards

Tutholme, Woodhouses
Derbyshire

September 2019

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Methods used to prepare this report, including those carried out in the field followed The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

Site Name:	Tutholme
Document Number:	FFE-00385-MH-09092019-V1
Project:	Residential Development
Central OS Grid Reference:	SK 38417 24308

Report Edn.	Author	Date	Reviewed By	Final Check
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V1	-	09/09/2019	David Nixon	David Nixon

2 METHODOLOGY

Desk Study

- 2.1 A search was undertaken using desktop resources including the Multi-Agency Geographic Information for the Countryside⁴ (MAGIC) resource. MAGIC was used to search for records of designated sites and Google Earth⁵ was also used to study the nearby landscape.

Daytime Building Inspection

- 2.2 Ecological consultant David Nixon (bat licence number 2015-18322-CLS-CLS) completed the daytime building inspection on 27th July 2019.
- 2.3 The survey was carried out using visual encounter survey techniques. Potential bat movement corridors and movement barriers were assessed and noted. During the site visit where possible, all areas of each building were internally and externally examined for evidence of bats. The survey included an internal and external assessment using a powerful torch and an endoscope.
- 2.4 Internal rooms were fully assessed using a powerful torch beam to scan 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 accessible 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.
- 2.5 Externally, visual ground inspections of all elevations were undertaken using binoculars. Photographs were taken to capture 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 and other potential entry points).
- 2.6 Other external aspects of the buildings were surveyed, including windows, window sills, external doors and the ground within close proximity of the structure was thoroughly inspected for bat droppings and feeding remains.

⁴ Multi-Agency Geographical Information for the Countryside (MAGIC). Crown Copyright and database rights [2015]. Ordnance Survey 100022861. Available at: <http://www.magic.gov.uk/>

⁵ https://www.google.co.uk/intl/en_uk/earth/

1 INTRODUCTION

- 1.1 Fauna Forest Ecology Limited was instructed by Nigel Edwards to carry out a daytime building inspection and subsequent nocturnal bat surveys at Tutholme off Woodhouses, Derbyshire (central OS grid reference SK 38417 24308). The development proposals are for the conversion of two redundant farm buildings (barns) to modern holiday accommodation.
- 1.2 A partial rebuild will be undertaken utilising reclaimed materials from the existing building. The size and layout of the buildings will remain in keeping with the current layout, with the exception of an increase in the size of a garage in order to accommodate a single vehicle.
- 1.3 This report presents the findings of the desk and field-based studies undertaken in July and August 2019. The purpose of the surveys was to assess the buildings for their suitability to support roosting bats and to ascertain evidence of any bat roosting. During the daytime assessment the buildings were also surveyed for nesting birds. The field visit results provide information to determine the potential ecological impact the proposed development may have on roosting bats and nesting birds, and to inform the level of further survey effort and mitigation required to comply with relevant nature conservation policies and legislation.
- 1.4 Woodhouses is approximately 700m south of Melbourne, 9.5km south of Derby and 13km east of Burton-upon-Trent. The survey site is located in a typical agricultural setting and comprises two barns and a lean-to structure, collectively known as Tutholme. For the purpose of this report, survey buildings are referred to as Barn 1, Barn 2 and Lean-to.
- 1.5 All survey and assessment work was completed in accordance with official assessment guidelines¹ and largely followed that recommended by the Chartered Institute for Ecology and Environmental Management (CIEEM)² and follows the British Standard Code of Practice³.

¹ Collins J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edn. Bat Conservation Trust, London.

² CIEEM (2015) Guidelines for Ecological Report Writing. CIEEM, Winchester.

³ British Standards Institution (2013) BS 42020:2013. Biodiversity – Code of practice for planning and development. British Standards Institution, London.

3 RESULTS

Desk Study

- 3.1 Two statutory designated sites lie within 2km of the survey buildings. These include Calke Abbey National Nature Reserve (NNR) Site of Special Scientific Interest (SSSI), which lies 1.6km south-east of the site, and Dimminsdale SSSI, which lies 1.5km south-east of the site. The survey site also lies within the bounds of the National Forest, a non-statutory designation.

Habitats

- 3.2 The site itself is situated in a rural setting with its immediate surrounds comprising other farm buildings, arable fields, mature trees and hedgerows. Further beyond the boundaries, the landscape largely comprises substantial arable fields that are bounded by a network of hedgerows and occasional tree lines and patches of deciduous woodland, providing excellent connectivity to the wider landscape and beyond.

Daytime Building Inspection Results

- 3.3 Barn 1 is subdivided in two sections. Section 1 is used to park a motor vehicle and Section 2 is a former stable that is currently used by nesting doves. The barn is a solid brick building with a pitched timber roof that is clad with clay tiles and it is partially lined with modern breathable roof membrane.
- 3.4 Section 1 has a timber dividing wall, it is open to the elements and is used regularly to park a car. Potential Roosting Features (PRFs) include dislodged bricks, failed mortar bedding, raised tiles and gaps behind the guttering. There are small crevices above the door lintel, cracks in the timber beams and also settlement cracks in the walls. During the field visit, two small bat droppings were discovered in a spider web near to the parked car.
- 3.5 Section 2 can be entered via a stable door. It once contained a loft void but in recent years the ceiling has become progressively worse and has collapsed. Like Section 1, numerous gaps and cervices were noted during the survey and evidence of common British birds and fan-tailed doves was found. No evidence of bats was found in Section 2 of this building.
- 3.6 Barn 2 is also a brick structure with a pitched timber-framed roof that is covered with clay tiles. Access to the building was achieved via a stable door. Many of the roof tiles are slipped, damaged and missing, and there are a number of roosting features inside the building, including gaps between the timber beams, settlement cracks and crevices between the brickwork where the mortar has failed.
- 3.7 The lean-to structure was built using a mixture of brick and local stone. The roof is timber-framed, pitched and it is covered with clay tiles. Many of the tiles are dislodged, damaged, raised or missing. During the survey a number of holes were observed in the stonework. No evidence of bats was found inside the lean-to structure.

Table 1: Guidelines summary for assessing potential bat roost suitability

Suitability	Description of building, tree or structure
Negligible	Negligible habitat features on site likely to be used by roosting bats
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, potential roost sites not suitable for larger numbers or regular use (i.e. maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats, but unlikely to support a roost of high conservation status.
High	A structure or tree 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.
Confirmed roost	Evidence of bats or use by bats found.

Nocturnal Bat Surveys

- 2.7 The buildings were surveyed three times using two surveyors. The first survey was completed at dusk on 31st July 2019 by Martin Kessel (bat licence number 2018-33025-CLS-CLS) and Dan Cliffe. The buildings were then re-surveyed at dusk on 14th August 2019 by Martin Kessel and Bill Cove (bat licence number 2015-13109-CLS-CLS). Finally, a third survey was completed at dawn on 30th August 2019 by Martin Kessel and Nathan Rimmer. Surveyors took up separate positions surrounding the buildings for 15 minutes prior to and for 1.5 hours after sunset for the dusk emergence surveys and for 2 hours prior to and for 15 minutes after sunrise for the dawn re-entry survey. At any one time between the surveyors, all areas of the roof and external area of the building(s) deemed to hold risk of bat emergence 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. Equipment models used during the nocturnal surveys included the following: EchoMeter Touch 2 Pro; Anabat Walkabout; Anabat Scout; Magenta 4; Batbox Duet.

Inspection for Nesting Birds

- 2.8 The daytime building inspection included an assessment for evidence of common nesting birds. Inside the buildings, artificial light was used to search for birds, dead birds, dead chicks, nesting material and eggs.

Limitations

- 2.9 Bat droppings deposited in or around the exterior degrade quickly due to weather. The presence of bats or their roost must not be disregarded in the absence of droppings.
- 2.10 Much of the floor space of each barn was littered with typical agricultural debris and detritus, reducing the likelihood of discovering all evidence of bats and birds.

Table 3: Nocturnal survey weather conditions

Date	Start	Finish	Sunset/Sunrise	Temp °C	Wind	Cloud %	Rain
31/07/2019	20:50	22:35	21:05	16	Calm	100	Dry
14/08/2019	20:00	22:05	20:35	16	Calm	100	Dry
30/08/2019	04:30	06:15	06:12	15	Calm	50	Dry

Table 4: Nocturnal results summary

Date	Time	Species	Activity/Notes
31/07/2019 Surveyor 1	21:16	<i>P. pygmaeus</i>	Flying along side of building
	21:17	<i>P. pipistrellus</i>	Flying along front of building
	21:32	<i>P. pipistrellus</i>	Flew along front of building
	21:34	<i>P. pygmaeus</i>	Flew along front of building
	21:47	<i>P. pipistrellus</i>	Foraging by house
	22:06	<i>P. pygmaeus</i>	Flew over barn 1
	22:15	<i>N. leisleri</i>	Distant commuting call
31/07/2019 Surveyor 2	21:26	<i>P. pygmaeus</i>	Foraging around trees south of property
	21:35	<i>P. pygmaeus</i>	Swarming x2 Rear Garden
	21:39	<i>P. pipistrellus</i>	Foraging rear garden
	21:43	<i>P. pygmaeus</i>	Swarming rear garden
	21:49	<i>P. pipistrellus</i>	Commuting west
	21:51	<i>P. pipistrellus</i>	Foraging rear garden
	21:52	<i>P. pygmaeus</i>	Commuting north over building
14/08/2019 Surveyor 1	21:20	<i>P. pipistrellus</i>	Foraging in front of building
	No other visuals		
14/08/2019 Surveyor 2	21:17	<i>P. pygmaeus</i>	Flying towards building
	No other visuals		
30/08/2019 Surveyor 1	05:23	<i>P. auritus</i>	Commuting along northern side of building
	05:33	<i>P. pipistrellus</i>	Foraging call
	No other visuals		
30/08/2019 Surveyor 2	05:21	<i>P. pygmaeus</i>	Foraging around trees behind surveyor
	No other visuals		

- 3.8 Taking all of the above into account, the buildings were classified as holding high value to roosting bats.

Bird Inspection Results

- 3.9 All of the site buildings are suitable for use by nesting birds due the very many gaps, crevices and other features allowing readily available access to their internal elements. During the daytime building inspection, nesting material was recorded in Section 2 of Barn 1 and also in Barn 2. Fan-tailed doves were seen in both barns.

Table 2: Weather conditions during daytime assessment

Date	Start	Finish	Temp °C	Wind	Cloud	Rain	Notes
27/07/2019	12:00	14:30	23	None	100%	No rain	N/A

Nocturnal Survey Results

Dusk Survey – 30th July 2019

- 3.10 Activity by common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats was relatively high throughout the survey. Most recordings were by commuting and foraging with visual observations of commuting bats flying down the sides of the buildings. Noctule bats (*Nyctalus noctula*) were heard but not seen during the survey. Of particular note was a commuting call from a Leisler's bat (*Nyctalus leisleri*), which was heard at 22:15. No bats emerged from either survey buildings during the survey, however swallows and pigeons were noted as roosting in both barns.

Dusk Survey – 14th August 2019

- 3.11 Activity levels for this survey were low. Occasional common and soprano pipistrelle foraging and commuting registrations were made as they commuted high over the site. Other species heard were noctule and a *Myotis*. No bats emerged from either survey building during the survey.

Dawn Survey – 30th August 2019

- 3.12 Relatively low levels of activity were recorded on this survey, with common and soprano pipistrelles recorded socialising, coupled with occasional foraging and commuting passes. Other species heard include brown long-eared bat (*Plecotus auritus*) and noctule. No bats entered either survey building during the survey.

Action to be taken if a bat is discovered during work

- If at any point during the building works bats are discovered, then contractors must stop work immediately and telephone Fauna Forest Ecology Limited for advice.
- Fauna Forest Ecology Limited will either provide an appropriately licensed bat worker to the site or provide a member of staff who will liaise directly with the contractor. Actions will then be taken following advice given. This may include removal of bats, but only where the bat ecologist considers this to be a viable and safe option.
- Bats are a protected species and there should be no attempt to handle a bat if discovered. The bat should be covered with a light material (cloth) and the bat worker called out to carry out the rescue.
- Only when the bat ecologist is satisfied that the risk to bats is ceased will works recommence.
- Should it transpire that the operation being carried out is of more risk to bats than was originally thought, then works will be stopped until they can be supervised by an appropriately licensed bat worker.
- If a bat is found under a tile or within any other niche to the building fabric, works will stop immediately (as above). If the bat does not voluntarily fly out, then the aperture will be carefully covered over to protect the bat(s) from the elements, leaving a small gap for the bat to escape voluntarily. Any covering should be free from grease or other contaminants and should not be a fibreglass-based material.

Common Birds

- 4.9 Evidence of bird nesting was found in two of the survey buildings. However, all of the structures on site provide suitable habitat for nesting. Impacts to nesting birds can be avoided by timing works outside the bird nesting season which generally runs from late February to late August, or by ensuring a site visit is carried out by a suitably qualified ecologist ahead of works commencing. Without appropriate mitigation, nesting birds may be impacted by the development proposals.

Method Statement for Breeding Birds

- 4.10 The following Method Statement should be adhered to throughout the construction phase:
- If an active nest is discovered when an ecologist is not onsite, works should halt, and Fauna Forest Ecology Limited should be contacted for advice. It is likely that a suitably qualified ecologist will need to attend site.
 - Irrespective of the time of year, if any nesting birds are discovered on site, an area around the nest site will be protected from disturbance with a suitable fence (not HERAs fencing) that would include an appropriate buffer zone, as determined by the suitably qualified supervising ecologist. Work will then be avoided in this area until the nest is no longer in use. Buffer zones in this respect will normally be 5m in diameter, and will be delineated by canes, cordon tape and signage.

4 INTERPRETATION & RECOMMENDATIONS

- 4.1 The daytime building inspection and nocturnal bat surveys were commissioned to assess the buildings for their suitability to support roosting bats and to ascertain evidence of any bat roosting and bird nesting.
- 4.2 The site does not lie within any statutory designated sites. The proposals are considered small-scale and will not have impact to habitats beyond the site boundaries provided that nocturnal lighting is not used inappropriately.
- 4.3 While undertaking the daytime building inspection, numerous potential access and egress points were observed in Barns 1 and 2 and also the lean-to structure. All buildings are considered to support features with bat roosting potential. These included gaps, missing masonry, raised tiles and cracks in brickwork due to missing mortar. The majority of these features have suitability for small numbers of bats during summer months, however the gaps in the stonework of the rear wall of the lean-to have the potential to support hibernating bats.
- 4.4 Two bat droppings were discovered in Barn 1 during the daytime building inspection. Whilst bat droppings can be indicative of the presence of a bat roost, low numbers of scattered droppings in barns can also result from bat foraging behaviour. Following the daytime survey, three follow-up nocturnal bat surveys were subsequently undertaken to determine the presence or likely absence of roosting bats.
- 4.5 Nocturnal surveys were carried out during the peak season and followed best practice guidelines. The nocturnal surveys recorded no evidence of bats emerging or re-entering either of the surveyed buildings. It is however evident that the site itself is used frequently by foraging and commuting species that are common within the county.
- 4.6 Given the lack of roosting evidence in Barns 1 and 2, we are of the opinion that the existence of a roost site can be reasonably discounted. Additionally, no evidence of night-roosting, perch-feeding bats was discovered during the three surveys.

Best Practice

- 4.7 Best practice would be for site personnel who are responsible for undertaking works to the survey buildings to adopt a careful approach with consideration for bats at all times. It is recommended that the roof tiles are removed carefully by hand and that heavy mechanical machinery is not used to demolish the buildings.
- 4.8 Due to the suitability of features within the stone wall of the lean-to for supporting hibernating bats, consideration should be given regarding the timing of works to this area (i.e. demolition of this wall, if required, should ideally be undertaken during transitional periods when bats are not hibernating such as April, September and October).

Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside Act 1981 (as amended) or are named as European Protected Species (EPS) in the Conservation of Habitats and Species Regulations 2017. These two main pieces of legislation have been consulted when writing this report and are therefore described in detail within this section.

Other relevant legislation and policy documents that have been consulted include - The Countryside and Rights of Way Act 2000; Natural Environment and Rural Communities Act 2006; The Hedgerow Regulations 1997; Biodiversity Action Plans, both UK-wide (UKBAP) and Local plans (LBAPs), and The National Planning Policy Framework (NPPF).

There is also legislation that legally protects certain animals - for example, the Protection of Badgers Act (1992) protects badgers and their setts, and the Deer Act (1991) places restrictions on actions that can be taken against deer species.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) [WCA] is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part I within the Act deals with the protection of wildlife. Most European Protected Species offences are now covered under the Conservation of Habitats and Species Regulations (see below), but some 'intentional' acts are still covered under the WCA, such as obstructing access to a bat roost.

The WCA prohibits the release to the wild of non-native animal species listed on Schedule 9 (e.g. Signal Crayfish and American Mink). It also prohibits planting in the wild of plants listed in Schedule 9 (e.g. Japanese Knotweed and Rhododendron ponticum) or otherwise deliberately causing them to grow in the wild. This is to prevent the release of invasive non-native species that could threaten our native wildlife.

The provisions relating to animals in the Act only apply to 'wild animals'; these are defined as those that are living wild or were living wild before being captured or killed. It does not apply to captive bred animals being held in captivity. There are 'defences' provided by the WCA. These are cases where acts that would otherwise be prohibited by the legislation are permitted, such as the incidental result of a lawful operation which could not be reasonably avoided, or actions within the living areas of a dwelling house.

Licensing

Certain prohibited actions under the Wildlife and Countryside Act may be undertaken under licence by the proper authority. For example, scientific study that requires capturing or disturbing protected animals can be allowed by obtaining a licence – e.g. bat surveys.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 (which are the principal means by which the EC Habitats Directive is transposed in England and Wales) update the legislation and consolidate all the many amendments which have been made to the Regulations since they were first made in 1994. These regulations provide for the:

- protection of European Protected Species [EPS] (animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain) including bats, dormice, great crested newts, and otters;
- designation and protection of domestic and European Sites - e.g. Site of Special Scientific Interest [SSSI] and Special Area of Conservation [SAC]; and
- adaptation of planning controls for the protection of such sites and species.

Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in exercising their function – i.e. when determining a planning application. There is no defence that an act was the incidental and unavoidable result of a lawful activity.

It is possible for actions which would otherwise be an offence under the Regulations to be undertaken under licence issued by the proper authority. For example, where a European Protected Species has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required. Species

Bats

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.

NDIX B: MAPS



est Ecology Limited
Way, Park Hall, Stoke-on-Trent, Staffordshire, ST3 5SY

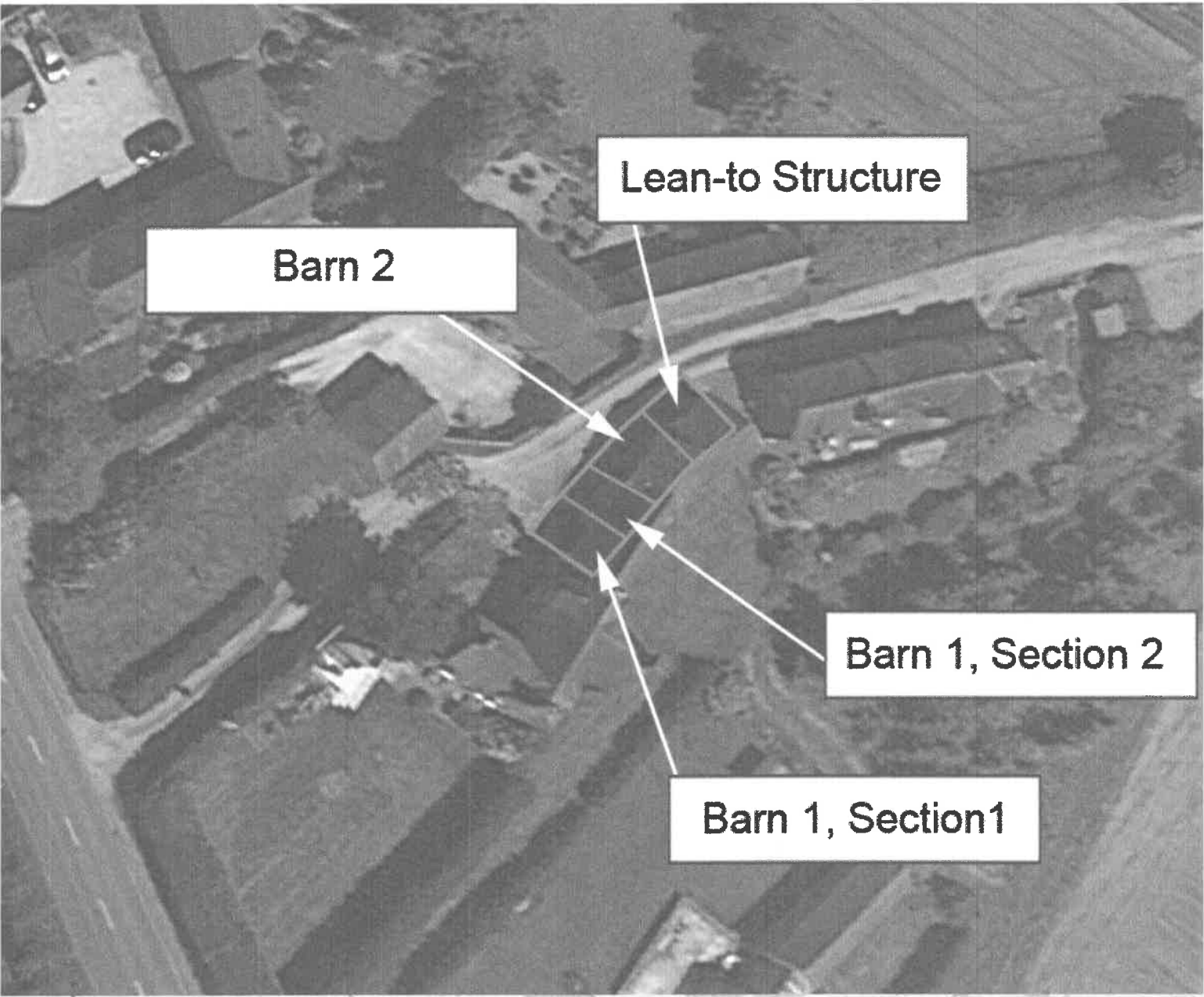
Figure 1: Site Location Map

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Way, Park Hall, Stoke-on-Trent, Staffordshire, ST3 5SY

Figure 3: Nocturnal Surveyor Positioning



Forest Ecology Limited
The Way, Park Hall, Stoke-on-Trent, Staffordshire, ST3 5SY

Figure 2: Survey Boundary

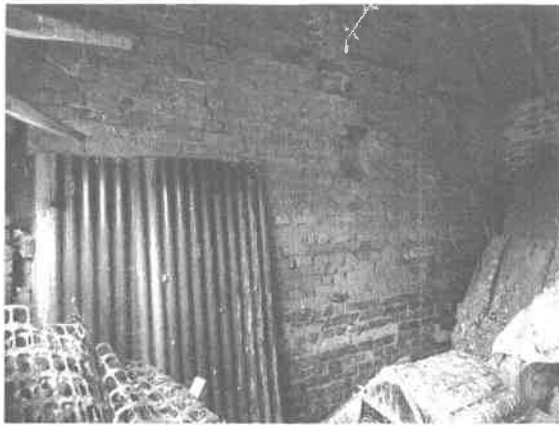


Image 7: Internal elements of Barn 2.



Image 8: Internal elements of Barn 2.



Image 9: Settlement crack in Barn 1.



Image 10: Gaps between stone inside the lean-to structure.

APPENDIX C: SITE IMAGES



Image 1: North-west facing aspect of Barn 1.
Note that that the building is subdivided. One half is used to park a motor vehicle (Section 1). Other us used by fan-tailed doves (Section 2)



Image 2: North-west facing aspect of Barn



Image 3: North-west facing aspect of lean-to structure adjacent to Barn 2.



Image 4: South-east facing aspects of survey buildings.



Image 5: Two bat droppings found in Barn 1 near parked motor vehicle.



Image 6: Dilapidated ceiling in Barn 1 Section 2 of Barn 1.