



Elite Ecology

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**Catswall Farm,
Cheddleton**



Bat Activity Survey

November 2023



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Bat Activity Survey

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0. Executive Summary

0.1 This report has been prepared at the request of Mr. T Boote (Proprietor). It relates to the potential presence of bats and birds at the proposed re-development site located at Catswall Farm, Huntley Road, Cheddleton, Tompkin, Staffordshire Moorlands, Staffordshire, ST13 7JU (OS: SJ 9499653005). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

0.2 The surveyed building is proposed to be re-developed. The plans are to re develop the building into a house.

0.3 Due to the amount of potential ingress/egress points and suitable roosting features, the buildings were deemed to be of the following bat roosting potential:

➤ **B1 = Unknown**

Therefore, further bat activity surveys were required during the bat survey season (May to September, inclusive). These were subsequently undertaken in August 2023.

The building was **confirmed** to support nesting birds.

0.4 Summary

Bat Presence/Absence

From the site survey, no bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (*Plecotus auritus*) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (*Pipistrellus pipistrellus*) bats.

Bird Presence/Absence

From the survey visit undertaken on the site, it can be concluded that the surveyed structures contain nesting birds in the form of barn owls (*Tyto alba*) and swallow (*Hirundo rustica*) nests. However, the surrounding landscape provides all of the necessary habitat elements that birds require.

Ecological Value of Building Units

The ecological value of the structure has been deemed as High to bats due to the presence of roosting bats.

The ecological value of the structure to birds has been deemed high due to the structure supporting nests in the form of barn owls (*Tyto alba*).

0.5 **Recommendations**

The recommendations for Catswall Farm, Cheddleton can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install bat compensatory features on the site in accordance with **Section 5 Recommendations**.
- No works can be undertaken during the bird breeding season of March to August (inclusive), unless the structure has been inspected by a suitably qualified ecologist no more than twenty-four hours prior to the commencement of works.
- To compensate for the loss a barn owl nest, an internal barn owl nest box is installed either prior to the commencement of the works or soon after the works have been completed.
- Incorporate eaves/ridge overhangs or easily accessible loft spaces for to compensate for the loss of swallow (*Hirundo rustica*) nests. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest boxes per feature](#).
- **Optional:** Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.

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1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Mr. T Boote (Proprietor). It relates to the potential presence of bats and birds at the proposed re-development site located at Catswall Farm, Huntley Road, Cheddleton, Tompkin, Staffordshire, ST13 7JU (OS Grid Reference: SJ 9499653005). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

1.2 Site Description

The site itself is situated in Cheddleton, which is a parish and village in Staffordshire Moorlands, near to the town of Leek. The habitats located on the survey site are amenity grassland, buildings, hard standing ground, hedgerows, and scattered trees. The building measures approximately 150m². Therefore, the site is considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting and foraging opportunities.

Figure 1: An aerial photograph of the surveyed site at Catswall Farm, Cheddleton (as shown by the red outline). The arbitrary building numbers referred to throughout this report are also illustrated.



1.3 Proposed Works

The surveyed building is proposed to be converted into a residential dwelling.

1.4 **Aims of Surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including barn owls)** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources, and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural England Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2. Survey Methodology

2.1 Desktop Survey Methodology

- 2.1.1 A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth, and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.
- 2.1.2 The local records centre was contacted to provide data on all bat and bird species within 2km of the proposed development site. Staffordshire Ecological Record (SER) were the relevant local record centre for this project.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds onsite.
- Any evidence of potential bat roosts and bird nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscopes, torches, and ladders. This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscopes, torches, ladders, and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams, and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains, and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few, or no mature trees, parkland, woodland, or wetland would generally equate to having **negligible/low** potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having **high** potential.

The amount of additional survey effort required for each feature will depend on its rating:

- **Negligible** – No further survey effort is required.
- **Low** – One further activity survey is required (structures only).
- **Moderate** – Two further activity surveys are required.
- **High** – Three further activity surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats, or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk and dawn activity surveys under the following protocol:

- Commencing the survey fifteen minutes before sunset (dusk survey) and two hours before sunrise (dawn survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk) and the bats returning (dawn) to their roosts.
- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk) and up to fifteen minutes after sunrise (dawn). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

- 2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

- 2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and Elite Ecology staff members:

Mr. Matthew Hodgson: Ecologist. Natural England Bat Survey Licence Number: 2023-11375-CL18-BAT, Bat Survey Level 2.

Mr. Lewis Simpson: BSc (Hons), Assistant Ecologist

Miss. Bethany Ireland: MSc, Assistant Ecologist

Mr. Ezra Rynjah: MSc, Assistant Ecologist

Bat Activity Survey

2.4 Field Surveys**2.4.1 Site Surveys**

Elite Ecology were made aware of a previous survey of the structure being undertaken in June 2013 and June 2016. Bat droppings were found within the stonework during the 2013 survey and a common pipistrelle (*Pipistrellus pipistrellus*) was seen to emerge for the stone work during the 2016 survey.

2.4.2 Roost Surveys

The buildings at Catswall Farm, Cheddleton were externally and internally inspected for the presence of bats with the use of various types of equipment (including binoculars, torches, endoscopes, and ladders) in full daylight. No Internal inspection occurred due to safety concerns Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2, EchoMeter Touch and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	Activity Survey of the Building – 15 th of August 2023. Dawn	Preliminary Roost Assessment and Activity Survey of the Buildings – 29 th of August 2023. Dusk.	Activity Survey of the Buildings – 12 th of August 2023. Dusk	Preliminary Roost Assessment of the Buildings – 10 th of October 2023.
Temp Start:	12°C	12°C	13°C	10°C
Temp Finish:	11°C	10°C	13°C	10°C
Humidity Start:	94%	78%	85%	90%
Humidity Finish:	97%	89%	86%	90%
Cloud Cover Start:	0%	0%	0%	95%
Cloud Cover Finish:	100%	0%	0%	95%
Wind Speed Average:	Low	Low	Medium	Low
Precipitation:	None	None	None	Light

3. Results

3.1 Desktop Survey Results

The ecological data search provided by SER revealed multiple bat and bird species within the 2km search radius of the structure at Catswall Farm, Cheddleton.

3.1.1 Bats

The ecological data search revealed several bat records within the 2km search radius identifying six different species.

The UK BAP species recorded in the search were brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats. The non-UK BAP species recorded in the search were common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*) and whiskered (*Myotis mystacinus*) bats. In addition to this, some records of unidentified bats (*Chiroptera* sp.), unidentified myotis (*Myotis* sp.), unidentified pipistrelle (*Pipistrellus* sp.) and whiskered/Brandt's (*Myotis mystacinus/brandtii*) bats.

The closest records to the site were of common pipistrelle, noctule and unidentified myotis bats which were all located on site. common pipistrelle has been recorded roosting on site.

3.1.2 Birds

The ecological data search revealed thirty-two bird records within the 2km search radius. The closest records to the site were of barn owl (*Tyto alba*), black-tailed godwit (*Limosa limosa*), fieldfare (*Turdus pilaris*), hobby (*Falco Subbuteo*), kingfisher (*Alcedo atthis*) and redwing (*Turdus iliacus*), which were all located approximately 686m to the west of the site.

3.1.3 Designated sites

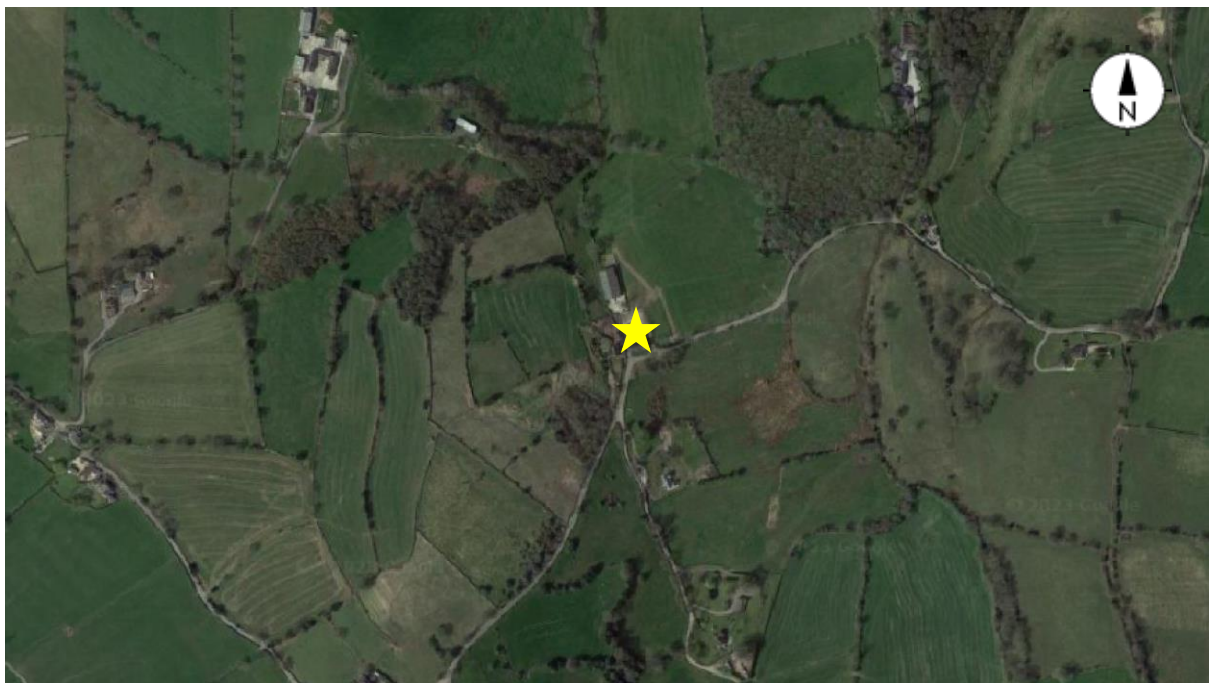
As the current proposal remains within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 **Field surveys**

3.2.1 **Habitat Description**

The site itself is situated in Cheddleton which is a parish and village in the Staffordshire Moorlands, near to the town of Leek. On site, there is amenity grassland, buildings, hard standing ground, hedgerows, and scattered trees. Within the wider landscape, residential dwellings (with their associated gardens), hedgerows, scattered trees, arable land, parkland, pastureland running and standing waterbodies, and woodlands are evident. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to Catswall Farm, Cheddleton.



3.2.2 **Building Survey**

One building is located on the survey site. This is the form of a detached barn. (please note that the updated PRA was undertaken after the activity surveys)

External Inspection

The structure is a barn constructed with cavity stone walls and a gabled clay tiled roof, with clay ridge tiles. Lifted tiles and ridge tiles are present through out the roof allowing for multiple entry points for bats and birds to enter into the structure. Mortar is missing in a number of places allowing for bats and birds to enter into the cavity. Doors are constructed with wood and gaps are present allowing for addition entry points. Windows are constructed from wood frames with the glass panes intact. Air vents are present allowing for addition entry points for bats and birds. No evidence of bats and birds has been found externally.

Internal Inspection

The structures internal consists of stone walls with timber beams supporting the roof. the upper floor is used as a hay loft. There is no lining under the tiles and natural light can be seen coming into the building. Within the structure one barn owl (*Tyto alba*) nest and a number of pellets have been found. One swallow (*Hirundo rustica*) nest has been identified. A number destroyed nests have been found within the structure. These nests could not be identified. Two brown long-eared bats (*Plecotus auritus*) were seen roosting within the structure. No droppings were discovered during the survey due to the presence of hay making the search difficult.

3.2.3 Summary of the Building Inspection

The building has been confirmed to be used by roosting bats and nesting birds.

The PRA was undertaken post surveys however based on the previous works undertaken in 2013 and 2016 the structure was deemed to have high potential for roosting bats. Due to this, three further activity surveys for bats are required during the bat activity season of May to September, with at least two surveys undertaken during the optima period of mid-May to August.

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 DNA Results

Due to the presence of hay making the search for droppings impossible, no eDNA was carried out for this site.

3.2.5 Activity Surveys

Three activity surveys were undertaken on the buildings on the 15th and 29th of August, and the 12th of September 2023.

Activity Survey 1 (15th of August 2023)

The activity survey was undertaken at dawn with sunrise being recorded at 05:50.

During this survey, no bats were seen to re-enter the building to roost. No bats were seen during the internal inspections during the survey.

However, brown long-eared (*Plecotus auritus*) and common pipistrelle (*Pipistrellus pipistrellus*) bats were identified to be using the site for foraging and commuting purposes.

Figure 3: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars) and the common bat flight paths (blue lines).



Activity Survey 2 (29th of August 2023)

The activity survey was undertaken at dusk with sunset being recorded at 20:05.

During the survey, no bats were seen to emerge from the structure. No bats were seen during the internal inspections during the survey.

During this survey, common pipistrelle and Leisler's (*Nyctalus leisleri*) bats were identified utilising the site for foraging and commuting purposes.

Figure 4: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars) and the common bat flight paths (blue lines).

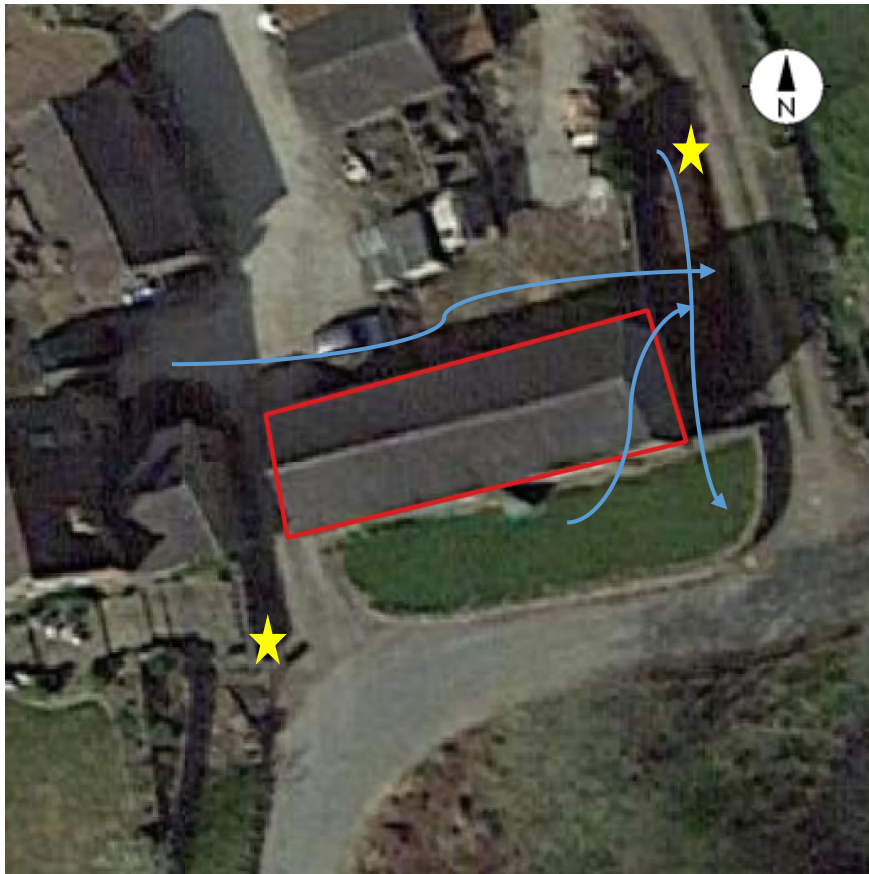
**Activity Survey 3 (12th of September 2023)**

The activity survey was undertaken at dusk with sunset being recorded at 19:32.

During the survey no bats were identified emerging from the surveyed structure. No bats were seen during the internal inspections during the survey.

However, the site was utilised by brown long-eared, common pipistrelle, noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats for commuting and foraging purposes.

Figure 5: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars), and the common bat flight paths (blue lines).



Summary

No bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally the structure has historically been used as a day roost for common pipistrelle bats.

In addition to this, foraging and commuting brown long-eared, common pipistrelle, Leisler's, noctule, and soprano pipistrelle bats were detected around the site.

Bat Activity Survey

4. Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	Yes	No
Explanation of Constraints:	Due to the presence of hay within the structure, bat dropping could not be located.	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the Re-development

The surveyed building is proposed to be converted into a residential dwelling. The potential impacts of these works have been identified as follows:

4.2.1 Designated Sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Bat Roosts

	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	High	High	High
Justification:	No bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (<i>Plecotus auritus</i>) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats.	No bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (<i>Plecotus auritus</i>) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats.	No bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (<i>Plecotus auritus</i>) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats.
Any further action:	Further action is required (Please see section 5).	Further action is required (Please see section 5).	Further action is required (Please see section 5).

4.2.3 Bird Nests

Due to the presence of barn owl (*Tyto alba*) and swallow (*Hirundo rustica*) nest has been identified nests in relation to the surveyed structure, the proposed scheme of works will be of a **high** effect to the local bird populations. Please see **Section 5.2** for further recommendations.

4.2.4 Foraging and Commuting Habitat

It is considered that the re-development of the site would have a **negligible** effect on potential foraging and commuting habitat. The site itself offers little foraging habitat, with the adjacent land containing better opportunities for bats to use. Post development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5. Recommendations

5.1 Bats

From the site survey, no bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (*Plecotus auritus*) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (*Pipistrellus pipistrellus*) bats.

Prior to any works, a Natural England Mitigation Licence is necessary to legally close or disturb the bat roost. Natural England licences take thirty working days once all the paperwork has been completed and submitted. As part of the licence, post-monitoring surveys will be required in subsequent years to assess whether any bats are using the compensatory measures installed around the site.

All works on the structure must wait until October/November when the bats typically move to their hibernation roosts. It is possible, however, that some bats may remain within their summer roost over the winter months for hibernation purposes. Due to this, at the beginning of the demolition works, a licenced ecologist is required to undertake soft demolition by accompanying building contractors in inspecting the structure by hand. This will ensure that no hibernating bats are harmed by the works. Three [1FS Schwegler Large Colony Bat Boxes](#) or similar (one per species) will be required to be installed on the morning of the commencement of the bat inspection. This will need to be situated on a nearby tree (facing north) so that any bats found can be translocated to this feature and enable the works to commence without impacting upon the bats.

Due to the presence of a void dwelling species roosting onsite, a bat loft must be incorporated within the design of the works. This can be located in the new building or another suitable structure on site.

The loft is to measure a minimum of 2m (height) x 5m (width) x 5.5m (length) as per the latest mitigation guidelines. This does not need to be in the same structure. It has been confirmed that the client can facilitate this feature somewhere within the red line boundary. Access into this loft will be facilitated through [Bat Access Tiles](#) and purposely lifted ridge tiles. All bat compensation features will need to be seeded with droppings to facilitate the uptake of the new roosting features.

A number of additional measures should be included to ensure that the roost is of the highest value possible to the target species. These measures include incorporating one [Schwegler 2F bat box](#) should be placed along the dividing wall board. Finally, a ply-board lining should be introduced [approximately] halfway up the roof (heading towards the apex) in order to provide further roosting opportunities for the bat species present. No skylights are to be installed within the bat loft. Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensorised lights triggered by large bodies should be incorporated.

Bat Activity Survey

No breathable roofing membrane is to be used on the structure. This is due to all breathable membranes containing features which lead to the bat's demise.

Annotated site plans showing the size and location of the above features of the bat loft will be provided once measurements have been provided.

Figure 6: A generic example of a bat loft.

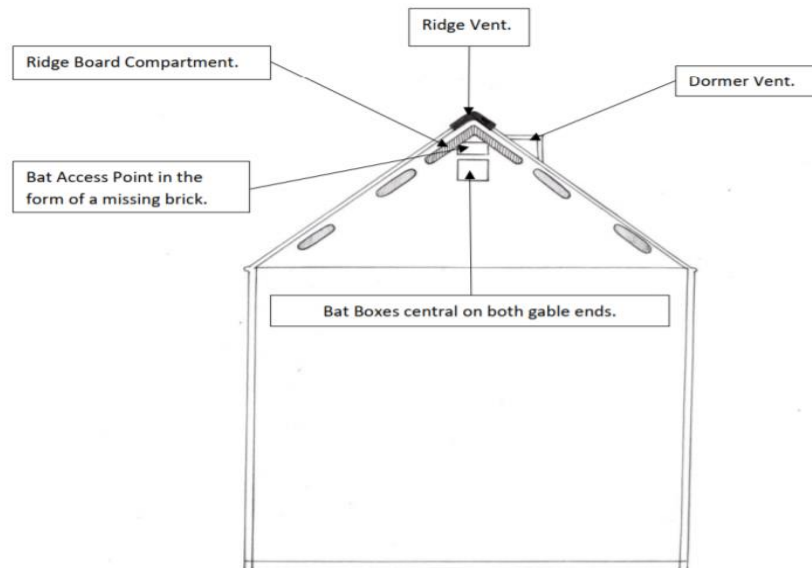


Figure 7: An illustration of a generic proposed bat loft design from an internal viewpoint.

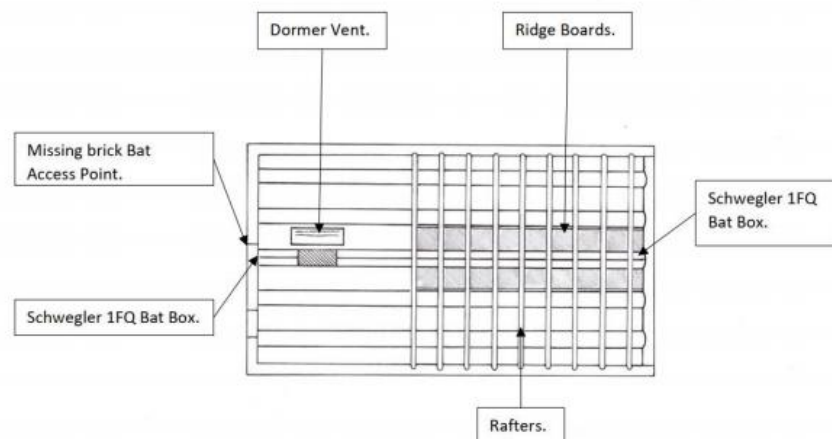


Figure 7: Proposed elevation plans of the new building at Catswall Farm, Cheddleton with examples of the bat boxes shown (blue shape). Please note these are not to scale.



Bat Activity Survey

Bat Site Enhancements

The site can also be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Common alder
Cherry pie	Dogrose
Corncockle	Elder
Corn marigold	English oak
Corn poppy	Gorse
Echniacea	Guelder rose
English bluebell	Hawthorn
Evening primrose	Hazel
Field poppies	Honeysuckle (native)
Honesty	Hornbeam
Ice plant 'pink lady'	Ivy
Knapweed	Jasmine
Mallow	Pussy willow
Mexican aster	Rowan
Michaelmas daisy	Silver birch
Night-scented stock	Herbs
Ox-eye daisy	Angelica
Phacelia	Bergamot
Poached egg plant	Borage
Primrose	Coriander
Red campion	English marigolds
Red valerian	Fennel
Scabious	Feverfew
St. John's Wort	Hyssop
Sweet William	Lavenders
Tobacco plant	Lemon balm
Verbena	Marjoram
Wallflowers	Rosemary
Wood forget-me-not	Sweet Cicely
Yarrow	Thyme

5.2 **Birds**

From the survey visit, the building was confirmed to support nesting birds in the form of barn owls (*Tyto alba*).

The uncompensated and unmitigated works are deemed to result in a permanent loss of this barn owl nesting site, due to the anticipated blocking of flight access inside the barn and the general internal repairs that will potentially destroy the nesting and perching area themselves.

The full remit of the works is required before ascertaining the level of disturbance likely to occur on the barn owls present. However, some general advice can be provided to limit and mitigate for the proposed works.

Barn owls are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly:

- Disturb a barn owl while it is building a nest or is in, on or near a nest containing eggs or young.
- Disturb a barn owl's dependent young.

Due to the nest present, it is therefore required that the works take place outside of the bird breeding season (March to August, inclusive). The Barn Owl Trust state that the best precaution for minimising disturbance to barn owls is to avoid works during the breeding season of the 1st of March and the 31st of August.

It is an option to provide alternative nesting locations as soon as possible, ideally before the 1st of March, although this is not achievable in this instance. This is to hopefully encourage the birds to nest there, away from the proposed work zone. Please be aware that there is no guarantee that this will work. These boxes can only be installed if disturbance to any barn owls is deemed unlikely.

It may be possible to obtain a Barn Owl licence from Natural England for the works, although they will require justification as to why the works are required during the bird breeding months.

In addition, to compensate for the loss of a barn owl nest, it is required that an internal barn owl nest box is installed, either prior to the commencement of the works or as soon after the works have been completed as possible.

Internal Barn Owl Nest Box

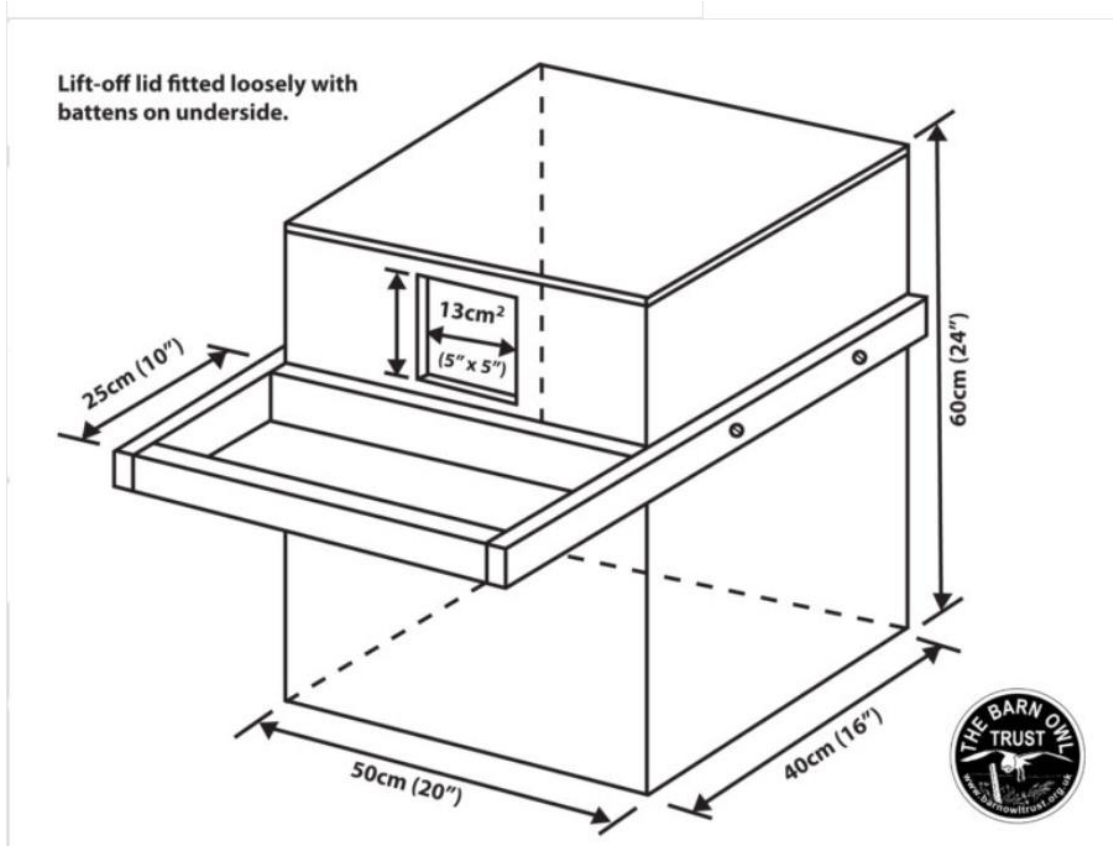
An [internal barn owl nest box](#) is recommended to be installed as high as possible inside the barn. It is imperative that if this option is chosen, then there must be a clear flight path for barn owls to this nest box. This flight access hole should measure a **minimum** of 120mm wide x 250mm high, but bigger dimensions are preferable.

It is an option to situate this internal barn owl nest box as high as possible at the inside of the south-gable of the barn, and utilise the wooden door near the top of this gable as a clear flight path to this nest box, by either removing it completely (preferable) or creating a flight access hole of the aforementioned dimensions. The proposed location of the barn owl box will be specified once the existing flight paths have been identified.

The following are essential criteria for internal barn owl nest box design, provided by Elite Ecology and the Barn Owl Trust:

- **Entrance hole:** Optimum size 130 x 130mm; minimum 100 x 100mm; maximum 150 x 150mm. Entrance hole must be clearly visible.
- **Height:** The nest box must be installed at least 3m from ground level.
- **Position:** The nest box must be positioned where the box will be completely dry for many years.
- **Floor Area of Nest Chamber:** Good size range 0.2 to 0.4 m². Absolute minimum 0.16m².
- **Depth:** From bottom of entrance hole to nest floor must be not less than 450mm.
- For any Barn Owl nest box less than 700mm deep, an exercise/landing platform below the entrance hole is vital for the safety of young fledglings. Climbing/jumping young birds can get from the platform onto the roof of the box and (ideally) onto other nearby perching places.
- **Lining:** The floor of the internal barn owl nest box should be lined with about 2" (5 cm) of small wood chippings or similar.
- Human access for easy clearing-out of nest debris is essential.
- **Weight:** Should be substantially constructed yet light enough to permit safe erection using basic equipment. Normal indoor-box weight range is 10-15 kg. Total weight for erection by hand should not exceed 18 kg and an indoor box under 8 kg is probably not substantial enough.
- **Materials:** Should not be constructed from tropical hardwood unless the timber is certified as sustainably grown.

Figure 6: Shows a diagram from the barn owl trust showing the internal structure and minimum recommended dimensions of an internal barn owl nest box.

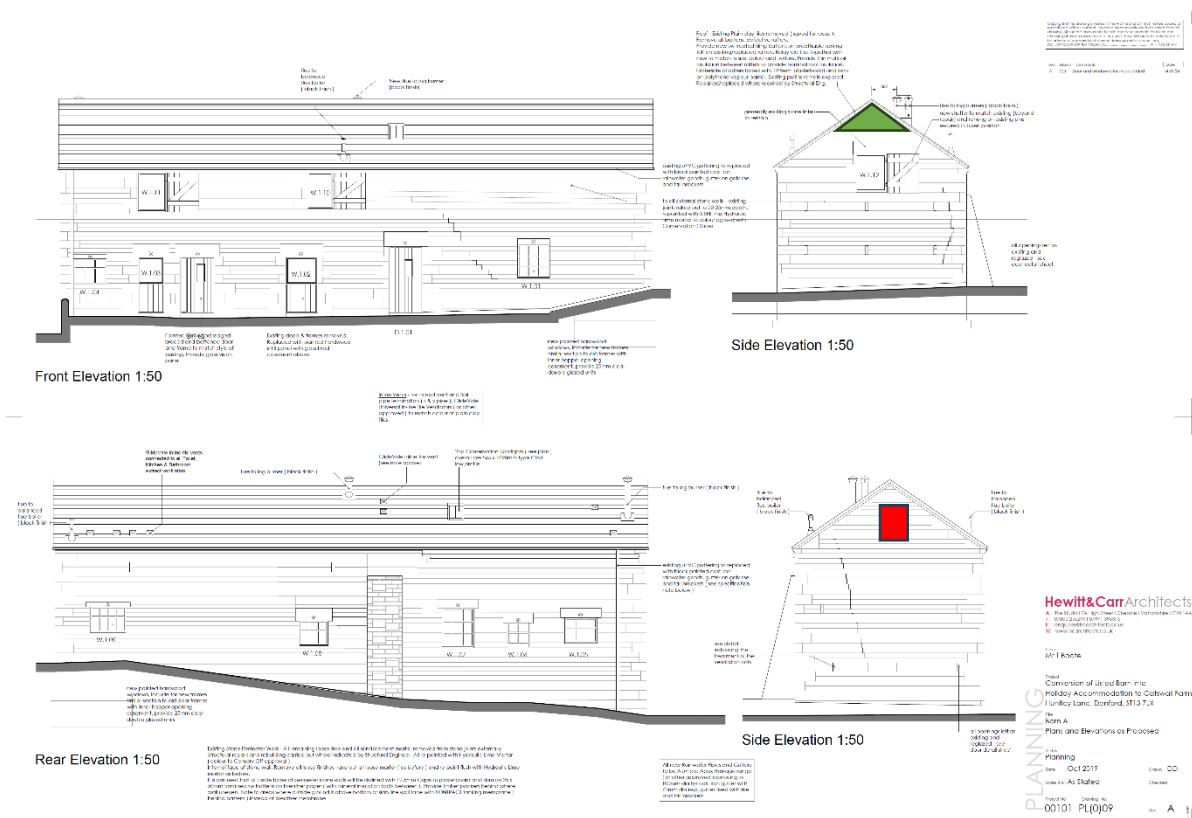


Option for Off Site Encouragement

It is an option to install an [external barn owl nest box](#) nearby to encourage the barn owls to nest elsewhere. This must be situated as high as possible within a nearby tree, with a clear flight path to the adjacent pastureland. Just like the internal barn owl nest box, the floor of the external barn owl nest box should be lined with about 2" (5 cm) of small wood chippings or similar.

To compensate for the loss of the swallow (*Hirundo rustica*) nests, it will be necessary to incorporate eaves/ridge overhangs or easily accessible loft spaces. This will give these specimens the necessary internal opportunities to nest at the site. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest boxes](#) per feature with four features recommended for the site.

Figure 7: Proposed elevation plans of the new building at Catswall Farm, Cheddleton with example location of owl box shown (red shapes) and the eaves ridge over hang (green shape). Please note that this is not to scale



Bird Site Enhancements

As an optional site enhancement, additional bird boxes can be installed on site to enhance nesting opportunities for birds in the local area. The following models are recommended but similar alternatives are also acceptable.

- Two [Manthorpe Swift Bricks](#) – These are integrated bird boxes and are therefore required to be installed during the bricklaying process.
- One [Sparrow Terrace Nest Box](#)

6. Summary

6.1 Bat Presence/Absence

From the site survey, no bats were found to be using the site during the activity surveys, however during the updated Preliminary Roost Assessment, two brown long-eared (*Plecotus auritus*) bats were identified within the structure. Due to the time of year the structure has been deemed to be a transitional roost for brown long-eared bats. Additionally, the structure has historically been used as a day roost for common pipistrelle (*Pipistrellus pipistrellus*) bats.

6.2 Bird Presence/Absence

From the survey visit undertaken on the site, it can be concluded that the surveyed structures contain nesting birds in the form of barn owls (*Tyto alba*) and swallow (*Hirundo rustica*) nests. However, the surrounding landscape provides all of the necessary habitat elements that birds require.

6.3 Ecological Value of Building Units

The ecological value of the structure has been deemed as **high** to bats due to the presence of roosting bats.

The ecological value of the structure to birds has been deemed **high** due to the structure supporting nests in the form of barn owls (*Tyto alba*).

6.4 Recommendations

The recommendations for Catswall Farm, Cheddleton can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install bat compensatory features on the site in accordance with **Section 5 Recommendations**.
- No works can be undertaken during the bird breeding season of March to August (inclusive), unless the structure has been inspected by a suitably qualified ecologist no more than twenty-four hours prior to the commencement of works.
- To compensate for the loss a barn owl nest, an internal barn owl nest box is installed either prior to the commencement of the works or soon after the works have been completed.
- Incorporate eaves/ridge overhangs or easily accessible loft spaces for to compensate for the loss of swallow (*Hirundo rustica*) nests. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest boxes per feature](#).
- **Optional:** Install a variety of bird boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.

7. References

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8. Appendices

Appendix A: Site Plans

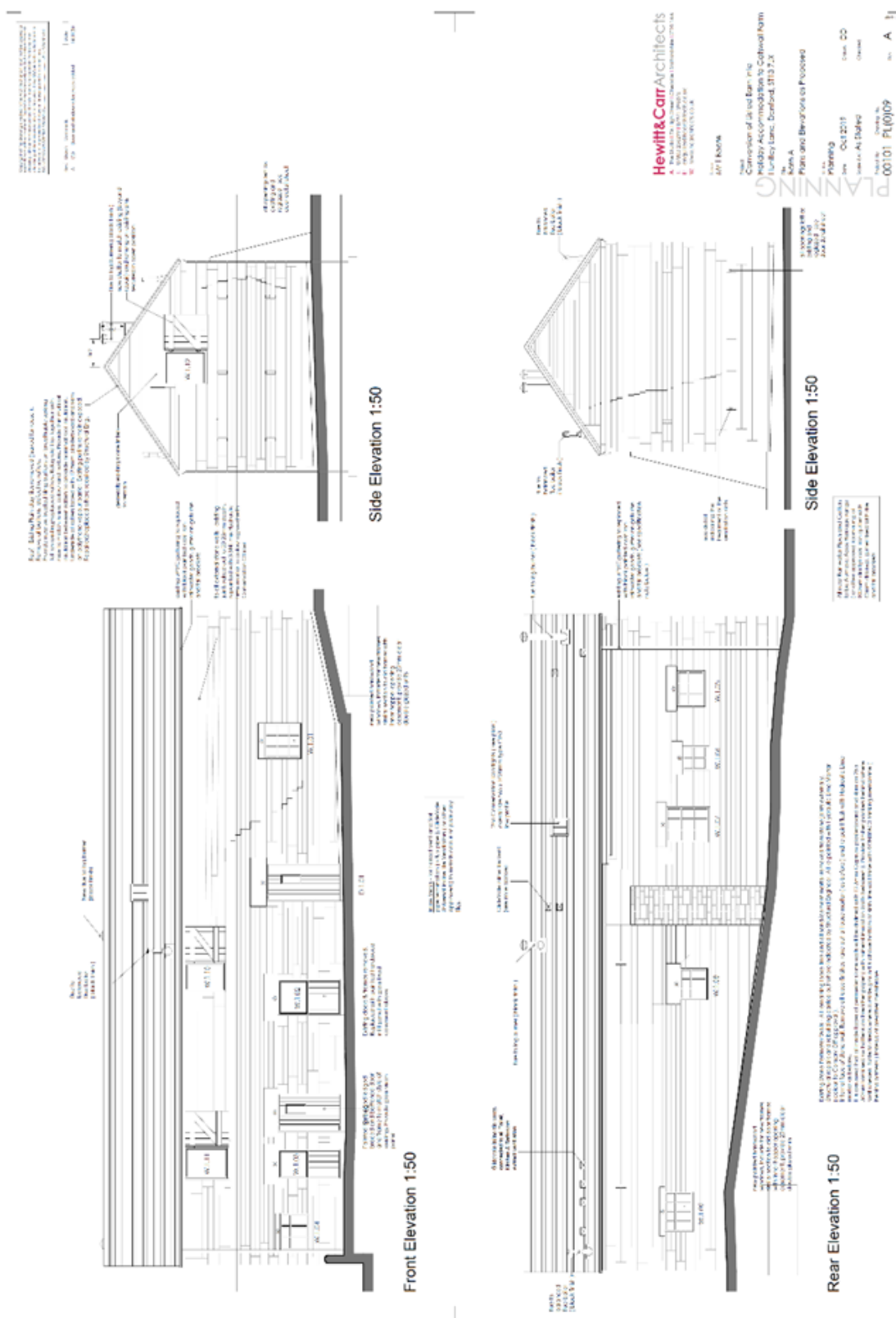
Appendix B: Eco Data Map

Appendix C: Artificial Light and Bats

Appendix D: Photographic Records

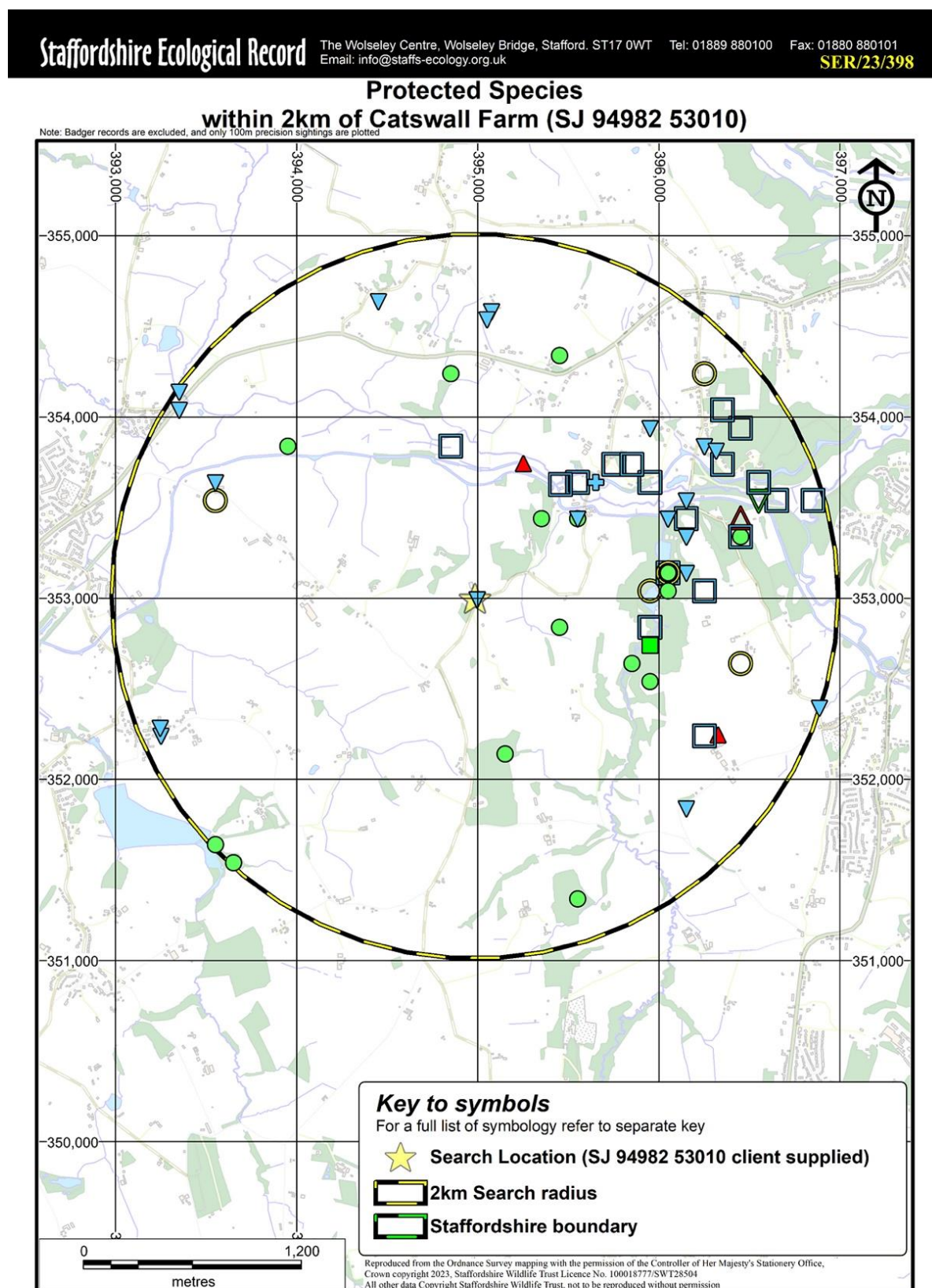
Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix A: Site Plans

Appendix B: The Ecological Data Search Maps

This map was produced by SER. All rights regarding the map belong to them.



Staffordshire Ecological Record

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A legend to the map showing Nature Conservation Sites and Species

Introduction

These colours are used on the site alert mapping within the SWT GIS, but SER cannot guarantee the same colours are used in any other mapping system, particularly those based on ArcView.

Statutory Designations from Natural England's web-site

	National Nature Reserves	★	NNR (boundary not available owing to OS restrictions)
	Sites of Special Scientific Interest	★	SSSI (boundary not available owing to OS restrictions)
	Local Nature Reserves	★	LNR (boundary not available owing to OS restrictions)

Non-statutory Designations from the Staffordshire Grading System (1995 onwards)

	Site of Biological Importance (ex Grade 1 SBI) equivalent to "Local Wildlife Site"
	Biodiversity Alert Site (ex Grade 2 SBI)
	Proposed/potential Site of Biological Importance

Geological Sites

	Regionally Important Geological/geomorphological Site (= Local Geological Site)
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Staffordshire Wildlife Trust Sites

	SWT Nature Reserves
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Other Nature Reserves

	Royal Society for the Protection of Birds
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Ancient Woodland Inventory

	Ancient & Semi-natural Woodland
	Ancient Replanted Woodland

Species Information

	Mammals excluding those listed below		Amphibians and reptiles excluding those below
	Otter (<i>Lutra lutra</i>)		Great Crested Newt (<i>Triturus cristatus</i>)
	Badger (<i>Meles meles</i>) - not normally supplied		Native Crayfish (<i>Austropotamobius pallipes</i>)
	Water Vole (<i>Arvicola terrestris</i>)		Flowering plants except those below
	All bat species		Bluebell (<i>Hyacinthoides non-scripta</i>)
	All bird species		Butterflies and Moths
	Any other protected species (precise to 100m)		BAP Species Records (precise to 100m)
	All Protected Species Records (precise to 1km)		BAP Species Records (precise to 1km)

Notes:

The Local Nature Reserve and other nature reserve boundaries can overlay the current grading when both layers are actively visible

Where there are multiple species records for the same grid reference the dot for one species may obscure the dots for other species - all species records will be displayed in the accompanying spreadsheet

Not all the above categories may be present on the accompanying map

Version 2.0 July 2011

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Appendix C: Artificial Lighting and Bats

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Photographic Records

Plate 1: An image showing barn owl pellets which were found in the attic of the barn.



Plate 2: External of the surveyed structure.



Plate 3: Internals of the structure with brown long-eared bats present



Plate 4: Close up of bats within the structure.



Bat Activity Survey

Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat			
January		February	
	Hibernating; using up fat reserves.		Still hibernating; few fat reserves left.
March		April	
	Some activity; occasional bat seen feeding.		Awake and feeding at night.
May		June	
	Females looking for nursery sites.		Young born, usually only one.
July		August	
	Young still suckling.		Young start catching insects; females leave nursery to find males.
September		October	
	Mating season begins; start building fat reserves for hibernation.		Search for suitable hibernation site.
November		December	
	Hibernation begins although still some activity in warm weather.		Hibernating.

Appendix F: Legislation and Policy

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

9. Notice to Readers: Conditions of this Report

All reports are certified products and cannot be shown, copied, or distributed to third parties without the written permission of Elite Ecology. No liability is accepted for the contents of the report, other than to that of the client(s). If any part of this report is altered without the written permission of Elite Ecology, then the whole report becomes invalid.

Elite Ecology agrees to supply ecological consulting services and advice of a preliminary or thorough nature as advised or commissioned. Upon commissioning Elite Ecology to undertake the work, the client(s) grant access to the site upon the agreed date. If no site access is available upon this date, Elite Ecology holds the right to charge the client(s) for lost staffing time and additional travel costs.

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Should any equipment be damaged or lost on site at the fault of the client(s), then Elite Ecology withholds the right to charge 100% above the current market value for that exact product or the nearest similar product.

The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.