



**“Providing Common Sense Solutions for Sustainable Development”**

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# **Old Engine Farm, Dilhorne**

## **Bat and Bird Presence/Absence Survey Report**

**November 2020**



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Bat and Bird Presence/Absence Survey

**Bat and Bird Presence/Absence Survey**

At

**Old Engine Farm,**  
**Dilhorne,**  
**Staffordshire,**  
**ST10 2PX**

For

**Billie Chell (Hewitt & Carr Architects)**

on behalf of

**Mr and Mrs Wheat (landowners)**

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**Bat and Bird Presence/Absence Survey**

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**Executive Summary**

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**0.1 Report rationale**

This report has been prepared at the request of Billie Chell (Hewitt & Carr Architects) on behalf of Mr and Mrs Wheat (landowners) and is in relation to the identification and location of protected bat and bird species at Old Engine Farm, Dilhorne, Staffordshire, ST10 2PX, (OS Grid Reference: SJ98360 44197).

The following scoping bat survey was undertaken on the following date;

- 10<sup>th</sup> November 2020

**0.2 Background**

Under the current proposals, the former Milking Parlour is to be converted into a dwelling, along with the adjacent barn.

**0.3 Ecological Impact Assessment****Bat and Bird presence/absence**

Bats – During the scoping survey, the buildings on-site were found to both have corrugated steels roofs with skylights and solid brick walls. Some cracks and crevices were located within the brickwork of the Milking Parlour; however, these cracks and crevices are exposed to the weather; therefore, they are not suitable for roosting bats.

Birds – It is evident that nesting swallows and swifts have been utilising both buildings on-site, the Milking Parlour was found to contain four recently active swallow nests with one historical nest. The barn was found to have a House Sparrow nest within the southwest gable end apex.

**0.3 Ecological Provisions**

Please see 'Section 5 – Ecological provisions' for an outline of the proposed ecological provisions for the works at the 'Old Engine Farm, Dilhorne'.

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## Bat and Bird Presence/Absence Survey

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**1 INTRODUCTION**

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This report has been prepared at the request of Billie Chell (Hewitt & Carr Architects) on behalf of Mr and Mrs Wheat (landowners) and is in relation to the identification and location of protected bat and bird species at the Old Engine Farm, Dilhorne ST10 2PX, (OS Grid Reference: SJ98360 44197).

The following scoping bat survey was undertaken on the following date;

10<sup>th</sup> and the 19<sup>th</sup> November 2020 by the following ecologists,

- **Mr Paul Keeling** BSc (Hons), MCIEEM, Principal Ecologist, Natural England Bat Survey Licence Number: 2015-11546-CLS-CLS Bat Survey Level 2.
- **Miss Tiffany Jenkinson**, Assistant Ecologist.

**1.1 Site Description**

The buildings are situated within the rural village of Dilhorne, Staffordshire. The dominant habitats on site are open commercial buildings, a dwelling and sections of hard standing and amenity grassland.

Within the surrounding area, farmland, woodland, scattered trees, hedgerows and some residential and commercial units (with their associated gardens/yards), can also be located. The site itself contains potential roosting, commuting and foraging potential to local bat and bird populations.

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**Figure 1:** An aerial map showing the surveyed buildings at the 'Old Engine Farm, Dilhorne' in relation to some of the local landscape. The former Milking Parlour is highlighted within the red outline with the adjacent barn highlighted in blue.



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**Bat and Bird Presence/Absence Survey**

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**1.2 Proposed works**

Under the current proposals, the former Milking Parlour is to be converted into a dwelling, along with the adjacent barn.

**1.3 Aims of the survey**

The actions of the surveyors on the site and during the production of the report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3<sup>rd</sup> edition). The aim of the survey was to undertake an appraisal of the building/s and the surrounding area to establish the following:

**1.3.1 Survey protocol considered any protected bat species on-site****Bats**

- To establish the probability of bats and their roost sites being present at the proposed redevelopment site.
- To assess the roost status.
- To assess suitable food resources and habitat requirements.
- If a roost site is found, to provide an impact assessment.

**1.3.2 Survey protocol also considered any protected bird species on-site:****Barn Owls**

- To establish if barn owls were using the site.
- To locate nest sites, if present.
- To assess what types of activities were shown within the site of interest.
- To assess suitable food resources and habitat requirements.
- To provide an impact assessment, if barn owls are present.

**Birds**

- To establish if birds were using the site.
- To locate nest sites, if present.
- To assess what types of activities were shown within the site of interest.
- To assess suitable food resources and habitat requirements.
- To provide an impact assessment, if nests are found.

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1.3.3 The information was subsequently used in conjunction with the knowledge of the proposed works at the site to determine:

- What impacts the works are likely to have on any protected species found at the site.
- The need for a Natural England development licence application to be made in respect of activities concerning protected species.
- Recommendations for any mitigation measures that would be required.

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**2 SURVEY METHODOLOGY**

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**2.1 Summary of survey methods**

The objective of this report is to provide an ecological evaluation of the site in relation to its suitability for bat and bird utilisation. The survey considered the potential for roosting bats and gathered any anecdotal evidence (i.e., bats, bat droppings, feeding remains, urine stains, and grease marks) that may support their presence within the building unit(s).

**2.1.1 Walkover survey**

A walkover survey of the site and a visual inspection of the building/s and any trees were undertaken, to determine the availability of the required resources for the protected species in the immediate area. This would allow us to determine:

- Presence or absence of bats on-site (i.e., roosting).
- Evidence and/or potential of bat roosts on-site (i.e., summer roosts).
- Whether additional surveys are required.

**2.1.2 External Inspection of the Building/s Elevations**

The building/s on-site were inspected both externally and internally for signs of bat activity. Notes were made on the following in accordance with the guidelines published by the BCT for the scoping and surveying of building/s and built structures:

The objective of this survey was to locate suitable ingress, and egress points that protected species (bats) could use to fly into the building/s and also to identify any areas within the building/s in which these species may be able to roost and/or nest. The survey method used to inspect the external walls and roof of the buildings was a visual assessment with the use of binoculars, torch, endoscope, and ladders in full daylight.

This allowed us to determine the following information:

- Type and age of building/s.
- Type of construction.
- Presence of potential roost features (e.g., missing roof tiles, raised tiles, roof voids).
- Presence of suitable entry and exit points (e.g., broken windows, missing windows and doors/ridges, and the apex of the buildings).
- Amount and location of evidence of bats such as the presence of live or dead bats, droppings, grease marks, urine stains, and/or characteristic smell of bats.

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## Bat and Bird Presence/Absence Survey

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### 2.1.3 Internal Inspection of the Building/s Elevations and Rooms

The object of this survey was to locate and focus on areas which provide appropriate environmental conditions for bats. To do this, we must:

- Look for warm dark areas, joints, crevices, beams, and cavities for possible bat roost sites and nest sites.
- Locate roost sites.
- Listen for bats.
- Examine floors, walls, and structural elements for droppings, corpses, skeletons and dead insects.

### 2.1.4 Building/s Rating

In the absence of any evidence, structures have been assigned a rating of suitability from negligible to a high potential for supporting bats. The rating is based on the location of the structure in the surrounding landscape, the number, and type of features suitable for use by bats and the surveyor's experience. For example; a structure with a high level of regular disturbance with few opportunities for access by bats, that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would generally equate to having negligible potential. Conversely, a pre 20<sup>th</sup> century or early 20<sup>th</sup>-century building with many features suitable for use by bats close to good foraging habitat would have high potential.

### 2.1.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present on-site (if any):

- **Maternity or Nursery Roost** – used by breeding bats, where pups are born and raised to independence (anecdotal evidence may support this prospect).
- **Hibernation Site** – where bats may be found during the winter (this is assessed within the context of this report).
- **Daytime Summer Roost** – used by males and/or non-breeding females.
- **Night Roost** – where bats rest between feeding bouts during the night but are rarely present during the day.
- **Feeding Roost** – where bats temporarily hang up to eat an item of prey.

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### Bat and Bird Presence/Absence Survey

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- **Transitional (or Swarming) Site** – where bats may be present during the spring or autumn (this cannot be assessed within the context of this report).

#### 2.1.6 Bat Detector Survey (Dusk/Dawn surveys)

If required, the object of this survey is to detect active bats leaving possible roost sites identified in the external and internal surveys. This is achieved by:

- Being at the site 30 minutes before sunset and 90 minutes before sunrise.
- Listening for social calls at potential roost sites.
- Standing at different transect points around the buildings, using the bat detector to hear the bats plus trying to see the first bats emerge.
- Standing at different transect points at foraging areas.
- Carrying out this survey up to two hours after the first bats emerge and 15 minutes after sunrise. This will cover the emergence and returning period to the roost site, for some bat species.

- 2.1.7 Evidence will be used to determine whether a European Protected Species (EPS) licence will be required to ensure legal compliance during development. This will also include identifying which mitigation measures [if any] would be most appropriate.

#### 2.2 Pre-survey data search

A 'Local Records Centre' (LRC) data search was not undertaken due to the small size and nature of the works. The overall impact on biodiversity is likely to be localised and of low significance. It is considered very unlikely that the works will have any impact outside the footprint of the works. The data search results are considered unlikely to impact on the decision-making process, and therefore, an LRC search has not been undertaken.

This approach is consistent with CIEEMs Guideline for Accessing and Using Biodiversity Data (2016), which states that a 'low impact or small-scale development (e.g. by size, extent, duration of works, magnitude or locality)' may not require a LRC search where: there is no requirement for any other preliminary survey (e.g. for habitats or other protected species) other than nesting birds or barn owls; and no trees likely to be used by roosting bats are to be affected (e.g. felling, pollarding, crown reduction, limb removal).

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### 2.3 Surveyors Information

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

- **Mr Paul Keeling** BSc (Hons), MCIEEM, Principal Ecologist, Natural England Bat Survey Licence Number: 2015-11546-CLS-CLS Bat Survey Level 2.
- **Miss Tiffany Jenkinson**, Assistant Ecologist.

### 2.4 Field surveys

#### 2.4.1 Habitat Surveys

Evolution Ecology Ltd has no previous information about the site.

#### 2.4.2 Roost Surveys - weather conditions and timing

The buildings on site were externally and internally inspected for the presence of bats and birds with the use of binoculars, torches, an endoscope and ladders in full daylight.

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### Bat and Bird Presence/Absence Survey

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**Table 1:** Scoping Survey, Environmental Variables

| Environmental variables | Scoping Survey of the Building –<br>10 <sup>th</sup> November 2020 |
|-------------------------|--------------------------------------------------------------------|
| Temp Start              | 12°C                                                               |
| Temp Finish             | 12°C                                                               |
| Humidity Start          | 95%                                                                |
| Humidity Finish         | 95%                                                                |
| Cloud Cover Start       | 100%                                                               |
| Cloud Cover Finish      | 100%                                                               |
| Wind Speed Average      | Low                                                                |

#### 2.4.3 Roost and Activity Surveys

During the roost/scoping survey, the types of equipment used included an endoscope, ladders and torches.

The type of equipment used during bat activity dusk and dawn bat activity surveys are the Batbox Duet, SSF Bat2 heterodyne, and frequency division bat detectors along with the Echo Meter Touch 2 (EMT) bat detector.

##### Echo Meter Touch 2

The EMT bat detector is a data recorder that distinguishes bat calls from other sound sources in real-time (online signal analysis). Calls are recorded digitally as call sequences. The batcorder is used alongside Batbox Duet and SSF Bat2 heterodyne and Frequency Division bat detectors and provides an unbiased statistical analysis of bat species recorded during a survey on site. All statistical analysis software is included in the EMT, giving us real-time results quickly and efficiently.

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Bat and Bird Presence/Absence Survey

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**3 RESULTS**

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**3.1 Field surveys****3.1.1 Habitat description**

The buildings are situated within the rural village of Dilhorne, Staffordshire. The dominant habitats on site are open commercial buildings, a dwelling and sections of hard standing and amenity grassland.

Within the surrounding area, farmland, woodland, scattered trees, hedgerows and some residential and commercial units (with their associated gardens/yards), can also be located. The site itself contains potential roosting, commuting and foraging potential to local bat and bird populations.

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Bat and Bird Presence/Absence Survey

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**3.1.2 Bat roost and birds nest (including barn owl) survey****Table 2:** Access/roosting/nesting features for bats and birds to gain entry and roost/nest - identified externally during the scoping survey.

| <b>External Features</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Yes</b> | <b>No</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| Slotted Tiles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | ✓✓        |
| Staffordshire Blue Clay Tiles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | ✓✓        |
| Corrugated Steel Sheeting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ✓✓         |           |
| Shed roof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | ✓✓        |
| Pitch roof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ✓✓         |           |
| Hip roof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | ✓✓        |
| Skylights                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ✓✓         |           |
| Flat roof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | ✓✓        |
| Stone walls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | ✓✓        |
| Cavity walls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | ✓✓        |
| Solid Brick Walls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ✓✓         |           |
| Missing/open doors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ✓✓         |           |
| Gaps in the windows                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ✓✓         |           |
| Cracks/crevices on walls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ✓✓         |           |
| Slipped/missing/dislodged tiles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            | ✓✓        |
| Gaps around fascia/soffit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ✓✓         |           |
| Air/ridge vents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            | ✓✓        |
| Birds' nests                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | ✓✓        |
| <p><b>Notes:</b></p> <p><b>Former Milking Parlour:</b> The parlour is made up of a corrugated sheeting pitched roof, which contains some skylights. The building also has solid brick walls; the walls contain some cracks and crevices. However, due to some of the building being collapsed, these cracks and crevices are exposed to the elements making them unsuitable for bats. The building also has missing doors and windows, allowing birds to nest internally.</p> <p><b>Adjacent Barn Building:</b> The building again is made up of a corrugated sheeting pitched roof with skylights and solid brick walls. Overall, this building is in good condition, however, some small sections of missing mortar can be found around the gable end apexes. The building has open doors and missing windows, the windows are covered with a steel mesh.</p> |            |           |

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Bat and Bird Presence/Absence Survey

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**Table 3:** Features identified internally during the scoping survey.

| <b><u>Internal Features</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b><u>Yes</u></b>                                                       | <b><u>No</u></b>                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Shed Roof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Timber beams                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>                                     |
| Steel guarders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>                                     |
| Commercial rooms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Educational rooms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Storage rooms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Warehouse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Agricultural (inc. domestic livestock)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |                                                                         |
| Derelict building                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Moth/Butterfly remains                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Mouse droppings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Cobwebs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |                                                                         |
| Bat droppings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                         | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| Birds' nests                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |                                                                         |
| <p><b>Notes:</b></p> <p><b>Former Milking Parlour:</b> The parlous has not been used for a number of years and was found to have wooden beams below the corrugated steel roof. During the internal inspection, it was found that some of the building had collapsed. Swallow nests were located during the survey, one historical and four recently activity nests. Some internal cracks and crevices within the brick work were identified however, due to some missing roof and partly collapsed sections of the building, the features have been exposed to the elements.</p> <p><b>Adjacent Barn Building:</b> The barn building is currently disused, and was found to have a steel frame structure within the roof space. During the survey, no evidence of bats was located internally. One house sparrow nest was however located within the apex of the southwest gable end.</p> |                                                                         |                                                                         |

### 3.1.3 Summary from the external and internal inspections

Due to the limited ingress/egress points and limited suitable bat roosting features, the buildings are deemed as 'Negligible' potential for roosting bats.

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Bat and Bird Presence/Absence Survey

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**Table 4:** Features of buildings and built structure classification, which may indicate the potential for bats. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines.

| Value      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Confirmed  | Confirmed signs of bat presence/occupation (droppings, oily staining around entry points, food remnants, odour, scratching) and actual bat presence.                                                                                                                                                                                                                                                                                            |
| High       | Buildings: Features present with high potential to support roosting bats. These include disused buildings with points of access to the interior, a suitable building structure, (including provision of roof void or hanging tiles), proximity to woodland and or water.<br>Trees: Features present with a high potential to support roosting bats. These include holes/gaps on a tree with enveloping ivy within a woodland setting.           |
| Moderate   | Buildings: Features with some potential to support roosting bats. Access points not always visible, property may be in need of repair. Sub-optimal roosting habitat.<br>Trees: Some features of a high potential trees, but with few access points into the tree, or located in sub-optimal habitat.                                                                                                                                            |
| Low        | Buildings: Limited roosting potential. Properties in good condition. No access into building. Few features of bat interest.<br>Trees: No obvious access into trees, cavities and crevices that may be shallow in nature or within a sub-optimal habitat.                                                                                                                                                                                        |
| Negligible | Buildings: No potential for roosting and bats very unlikely to be present. Includes buildings such as warehouses where no roof void is evident or constructed from unsuitable material e.g. prefabricated with steel. Heavily disturbed or active industrial premises and buildings, which have exposed conditions.<br>Trees: Tree in good condition, with no holes/fissures or breaks. Located in sub-optimal habitat (i.e. in an urban area). |

## Bat and Bird Presence/Absence Survey

**Table 5:** 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 <sup>a</sup> (structures).<br><br>No further surveys required (trees). | Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. <sup>b</sup> | 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. <sup>b</sup> |

<sup>a</sup> 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.

<sup>b</sup> 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 Scoping Survey

**Birds** - During the scoping survey, the buildings were found to hold ecological features for nesting birds (swallows and house sparrows) due to having open doors and windows along with wood and steel beams (nesting places).

**Bats** - The buildings were also found to hold 'Negligible' potential for roosting bats. The Milking Parlour has cracks and crevices within the brickwork; however, these are exposed to the elements.

### 3.2.5 Activity surveys

No activity surveys were undertaken on the building, due to it being out of the bat activity survey season (March to August/September), and the buildings' limited bat roost features. The scoping survey was commissioned within November (hibernation season).

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Bat and Bird Presence/Absence Survey

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**4 IMPACT ASSESSMENT**

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**4.1 Constraints on survey information**

There were no weather constraints (heavy rain) with regards to obtaining the survey information. Evolution Ecology Ltd, therefore, feels confident that this survey report produces an accurate representation of the potential of the building on the site for bats.

**4.2 Constraints on equipment used**

No constraints were present with regards to the equipment used during the survey (i.e., endoscope, ladders, and high-powered binoculars).

**4.3 Potential impacts of the re-development**

Based on the current planning proposal, whereby:

Under the current proposals, the former Milking Parlour is to be converted into a dwelling, along with the adjacent barn.

- The potential impacts have been identified as follows:

**4.3.1 Designated sites**

The presence of any designated sites nearby is not applicable to the proposed project, as the building works will be of no detriment to the surrounding landscape.

**4.3.2 Roosts**

**Short-term impacts: Disturbance** [Negligible]

No bat roosts are present within the structures; therefore, there will be a 'negligible' short-term impacts for disturbance, with no species-specific mitigation measures required.

**Long-term impacts: Roost modification** [Negligible]

Same as 'Short-term impacts: Disturbance.'

**Long-term impacts: Roost loss** [Negligible]

Same as 'Short-term impacts: Disturbance.'

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## Bat and Bird Presence/Absence Survey

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### 4.3.3 Foraging and commuting habitat

It is considered that the works to the buildings would have a negligible effect on potential foraging and commuting bat and bird habitats. The surrounding habitats provide all of the necessary foraging value that bats require, and during the redevelopment works, this will remain the status quo.

### 4.4 Legislation and Policy Guidance

Biodiversity 2020: sets out to halt overall biodiversity loss, support healthy well-functioning ecosystems, and establish coherent ecological networks, with more and better places for nature for 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.

National Planning Policy Framework, Section 11: The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Article 10 of the EC Habitats Directive: The published article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.

Wildlife and Countryside Act 1981: All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats, etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation 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.

Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs, and nestlings. Some rarer species, such as barn owls are afforded extra protection.

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**Please note that if bat species are present at the site, the purpose of this report will only summarise the potential requirements for a bat mitigation package or project. A separate mitigation report or project will be required, which will include the necessary compensation measures to maintain the conservation status of a European Protected Species (EPS).**

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Bat and Bird Presence/Absence Survey

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**5 ECOLOGICAL PROVISIONS**

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From the information obtained during the surveys, it can be established that; ecological features for roosting bats were not evident; due to the cracks and crevices within the brickwork being exposed to the weather elements.

The following mitigation and compensation measures will need to be followed to ensure birds are safeguarded during the works as swallow and house sparrows' nests have been identified within the buildings.

**5.1 Bird Provisions -**

**Time avoidance measures** will need to be followed as birds, and their nests are protected under the 'Wildlife and Countryside Act 1981', making it illegal to kill, injure or destroy a bird, its chicks or nest. Therefore, any works to the barn that will impact on nesting birds will need to be carried out, outside of the bird breeding season (bird breeding season is from March to August).

Attentively, black plastic sheeting can be placed over open doors and windows to stop birds from accessing the buildings to nest. This should be done before the nesting season begins and maintained throughout to ensure no birds get stuck within the buildings.

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Bat and Bird Presence/Absence Survey

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**6 SUMMARY**

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**6.1 Bat and Bird presence/absence**

Bats – During the scoping survey, the buildings on-site were found to both have corrugated roofs with skylights and solid brick walls. Some cracks and crevices were located within the brickwork of the Milking Parlour; however, these cracks and crevices are exposed to the weather, therefore, are not suitable for roosting bats.

Birds – It is evident that nesting swallows and house sparrows have been utilising both buildings on-site, with the Milking Parlour was found to contain four recently active swallow nests with one historical nest. The barn was found to have a house sparrow nest within the southwest gable end apex.

**6.2 Ecological Provisions**

Please see 'Section 5 – Ecological provisions' for an outline of the proposed ecological provisions for the works at the 'Old Engine Farm, Dilhorne'.

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Bat and Bird Presence/Absence Survey

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**7 REFERENCES**

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Bat and Bird Presence/Absence Survey

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**8 APPENDICES**

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**Appendix A:** Site Plans

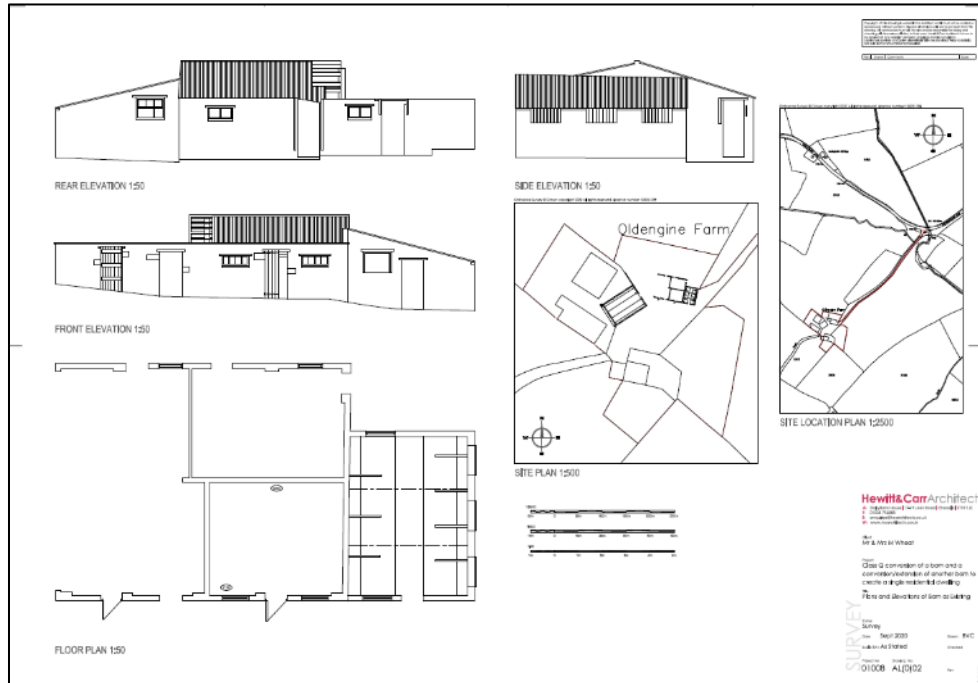
**Appendix B:** Additional Photographic Records

**Appendix C:** Bats and Artificial Light

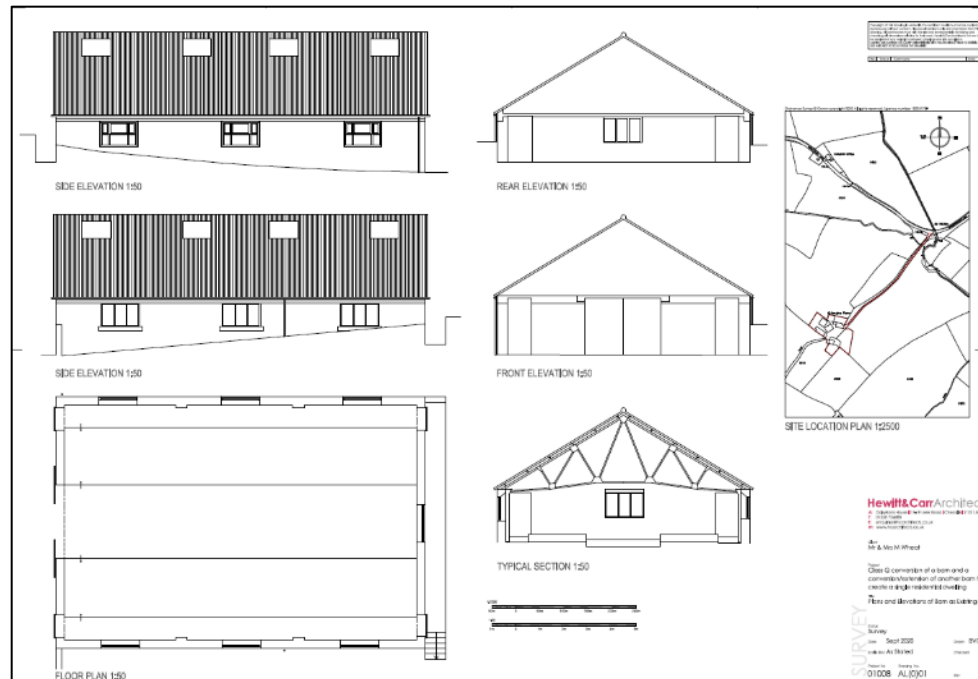
## Bat and Bird Presence/Absence Survey

**Appendix A: Plans – Please contact Billie Chell (Hewitt & Carr Architects) for additional plans.**

### Existing Plan of the Former Milking Parlour



### Existing Plans of the Adjacent Barn



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**Appendix B: Additional Photographic Records****Former Milking Parlour**

**Plate 1:** This image shows the southwest elevation of the former Milking Parlour, here you can see a number of open doors and windows.



**Plate 2:** Another image of the southwest elevation of the former Milking Parlour, this image is taken from the southwest corner, here you can see a collapsed section of the parlour.



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**Plate 3:** This photo shows the collapsed west gable end section of the former Milking Parlour.



**Plate 4:** An image of the northeast elevation of the Milking Parlour, again here, you can see open doors and windows.



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**Plate 5:** An image inside the east gable end room of the Milking Parlour. This room has a corrugated steel roof with timber beams. Recently active swallow nest are evident on the wooden beams.



**Plate 6:** An image of another room located within the Milking Parlour; this room contains a skylight within the corrugated roof. Again recently active swallow nests can be located along the wooden beams.



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Adjacent Barn

**Plate 7:** This image shows the northeast gable end of the barn, this barn again has open doors and missing/broken windows.



**Plate 8:** An image of the northwest elevation, here you can see the corrugated roof with skylights.



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**Plate 9:** An image of the southwest gable end of the barn. A house sparrow nest is located within the apex of the roof underneath the corrugated steel roof (highlighted in red).



**Plate 10:** This image shows the southeast elevation of the barn. Here you can see some of the open/broken windows.



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**Plate 11:** An internal image of the barn, looking towards the southwest gable end. The barn is internally made up of a steel structure, and solid brick walls.



**Plate 12:** This image shows the internal northeast gable end.



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## Bat and Bird Presence/Absence Survey

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### **Appendix C: Bat and Artificial Lights**

Artificial lighting is known to affect bat roosting and foraging behaviour with lighting shown to result in a range of impacts including 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 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, including 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 (BCT 2014).

Mitigation and lighting design Bat friendly lighting plans should firstly look to avoid lighting where possible and minimise lighting impacts by adopting the following measures:

- 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 the overall time.
- Consider no lighting solutions where possible. Options such as white lining, good signage, and LED cat's eyes, should be considered as preferable, especially within Zones 1 and 2. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.
- 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).
- 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.
- Consider the height of 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 uplighting. 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 uplighting. Column height should be carefully considered to balance task and mitigation measures.
- 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.

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**The Bat-Year**



**January** Hibernating; using up fat reserves.



**February** Still hibernating; few fat reserves left.



**March** Some activity; occasional bat seen feeding.



**April** Awake and feeding at night.



**May** Females looking for nursery sites.



**June** Young born usually only one.

### Bat and Bird Presence/Absence Survey

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**July** Young still suckling.



**August** Young start catching insects; females leave nursery to find males.



**September** Mating season begins; start building fat reserves for hibernation.



**October** Search for suitable hibernation site.



**November** Hibernation begins although still some activity in warm weather.



**December** Hibernating.

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Bat and Bird Presence/Absence Survey

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**9 LIMITING CONDITIONS/DISCLAIMERS (Unless stated otherwise)**

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**9.1 The Service**

- 9.2 Evolution Ecology agrees to supply ecological consulting services of a preliminary nature or a more thorough service as advised or as commissioned.

**10 Fees**

- 10.1 The client(s) will settle the agreed fee in full, within 30 days of receiving the invoice. Reports will remain the property of Evolution Ecology until full payment has been received. No liability is accepted for the contents of a report that is not paid in full. Any queries should be notified to Evolution Ecology within 7 days of the invoice date.
- 10.2 If the client(s) fails to pay within the time specified in 2.1 then Evolution Ecology shall charge the client(s) interest on the outstanding fee, both before and after any judgment, at the rate of 4% per annum above the HSBC Bank base rate, until payment is made in full (A part of a month being treated as a full month for the purposes of calculating interest).
- 10.3 In the event that it is necessary to recover any outstanding fees from the client(s), the client(s) will fully reimburse any costs and expenses incurred during the recovery period, including court costs. Evolution Ecology reserves the right to make a charge for every letter sent and telephone/fax call made, in connection with the recovery.

**11 The Report**

- 11.1 If any part of the report is lost, or altered without the written consent of Evolution Ecology, then the entire report becomes invalid.
- 11.2 The general format of reports is a certified product and cannot be shown, copied or distributed to third parties without the permission of Evolution Ecology. No liability is accepted for the contents of the report, other than to that of the client(s).
- 11.3 The report will purport not to express any opinion or comment as to the condition or structural integrity of any building and no reliance should be made on any such comments.

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**12.1 Insurance Cover**

12.2 All work carried out by Evolution Ecology is covered by a £1,000,000 professional indemnity insurance.

**13.1 Quality of Craftsmanship**

13.2 When appointing an Ecologist, please use only suitably qualified and experienced companies (The Local Authority and the Institute of Ecology and Environmental Managers may be able to provide a select list of such companies)

13.3 Evolution Ecology will not accept liability for any works undertaken by any other companies, or contractors.