



## Bat Emergence and Re-entry Surveys

Daisley House, Lindsell, Dunmow, CM6 3QL

Earlswood Homes

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**Industry Guidelines and Standards**

This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

**Proportionality**

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

**Executive Summary**

Arbtech Consulting Ltd was instructed by Earlswood Homes to undertake Bat Emergence and Re-entry Surveys (BERS) at Daisyley House, Lindsell, Dunmow, CM6 3QL (hereafter referred to as “the site”). The survey was required to inform a planning application for the demolition of the current outbuildings, to make way for the erection of three new build residential units (hereafter referred to as “the proposed development”).

No bat roosts were identified at the site. However, bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time. Any bats that begin using the buildings during the intervening period between the surveys being undertaken and works commencing could be injured or killed and their roosts destroyed. Therefore, a precautionary working method will be implemented, as detailed in Table 3 of this report. Requirements for a sensitive lighting strategy and opportunities for enhancement are also outlined in Table 3.

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## 1.0 Introduction and Context

### 1.1 Background

Arbtech Consulting Limited was instructed by Earlswood Homes to undertake Bat Emergence and Re-entry Surveys (BERS) at Daisyley House, Lindsell, Dunmow, CM6 3QL (hereafter referred to as “the site”). The survey was required to inform a planning application for the demolition of the current outbuildings, to make way for the erection of three new build residential units (hereafter referred to as “the proposed development”). A plan showing the proposed development is provided in Appendix 1.

The aim of the BERS was to determine the presence or likely absence of roosting bats and to characterise any roosts present. This has been undertaken with due consideration to the “Bat Surveys for Professional Ecologists —Good Practice Guidelines” publication (Collins, 2016).

The BERS have been informed by a Preliminary Roost Assessment (PRA) which was completed by Arbtech Consulting Ltd in June 2023 (Arbtech 2023). B1 was assessed to hold a low habitat value for roosting bats due to gaps along the base of the roof. B2 and B3 however were assessed to hold moderate habitat value for roosting bats due to the presence of several external features such as sections of lifted metal roof, gaps in wooden cladding, gaps between the roof edge and a broken soffit.

### 1.2 Site Location and Landscape Context

The site is located at National Grid Reference TL 6428 0002 and has an area of approximately 0.5ha. The site comprises a single residential dwelling, three outbuildings and garden areas which extend to the east. Other residential plots are found to the north and south, and the landscape to the east comprises an arable nature A site location plan is provided in Appendix 2.

### 1.3 Scope of the Report

This report provides a description of the bat activity observed and recorded during BERS. The aim of the surveys was to determine the presence or likely absence of bats and to characterise any roosts present including species, number of individuals, number and location of roost access points, and to gain an understanding of how bats use the site. The report provides information on possible constraints to the proposed development as a result of bats and summarises the requirements for any mitigation proposals, including a European Protected Species Licence (EPSL), where appropriate, to achieve planning or other statutory consent and to comply with wildlife legislation.

To achieve this, the following steps have been taken:

- BERS of three built structures has been undertaken to determine the presence or likely absence of bat roosts.
- An outline of potential impacts on any confirmed or unidentified roosts has been provided, based on the proposed development.
- Recommendations for mitigation have been made, along with advice on the requirements for a European Protected Species Licence (EPSL) application if appropriate.
- Opportunities for the enhancement of the site for roosting, foraging and commuting bats have been set out.

## **2.0 Methodology**

### **2.1 BERS**

Two BERS, comprising two dusk emergence surveys, were undertaken of B2 and B3, and one dusk BERS was undertaken of B1, as per the recommendations from the Preliminary Roost Assessment. The surveys involved surveyors positioned around the buildings ensuring that all elevations and roof sections with suitable roosting features could be clearly observed. Particular attention was paid to the areas of the buildings identified as providing suitable access points to bat roosts. Each surveyor was assigned an area of a building to observe for the duration of the survey.

Surveyors used heterodyne and frequency division bat detectors, and Echo Meter Touch detectors connected to iPads or Android tablets. Bat echolocation calls recorded during the surveys were analysed using Wildlife Acoustics sound analysis software Kaleidoscope V3.1.7 when required. The Echo Meter Touch includes an auto ID function for bat species, however this is not 100% accurate and further post-survey sound analysis is often required to confirm species that could not be identified by the auto ID software during the survey. Surveyors also used head torches, survey record sheets and pens/pencils for recording all activity observed during the surveys. Each surveyor was also provided with a handheld radio for communication between surveyors to assist with confirming ambiguous bat activity e.g. a bat emergence or a bat passing over the building.

One infrared recording kit was set up to monitor the buildings during the BERS. This comprised Nightfox Red Goggles set up on a tripod with two separate infrared lamps on a second tripod to provide additional illumination. Analysis of the footage was subsequently undertaken to detect roosting activity.

Dusk emergence surveys commenced 15 minutes before sunset and continued for 1½ - 2 hours after sunset – depending upon bat activity and surveyor visibility. Surveys were a minimum of two weeks apart.

Surveys were completed during optimal weather conditions i.e., when temperatures were above 10°C, with no rain or strong winds (greater than 5m/s), as these adverse weather conditions can impact upon bat emergence and foraging behaviour. Periods of high moon illuminance (>80%) were also avoided insofar as possible as this can reduce bat activity.

### **2.2 Surveyors**

Two surveyors were used to cover each building. The first survey had a total of six surveyors covering B1, B2 and B3, whilst the second survey had a total of four surveyors, covering B2 and B3. The name, bat licence details or level of bat survey experience and the designated position of each surveyor during each survey is detailed in the tables in Section 3.1 below and shown on the plan in Appendix 3.

### **2.3 Bat Roost Characterisation**

When bat roosts are present, the bat surveys undertaken at a site facilitate the characterisation of the roost type. This allows for appropriate mitigation and compensation to be designed to inform a European Protected Species Licence (EPSL) application to Natural England.

## **Bat Emergence and Re-entry Surveys**

The definitions of bat roost types are provided below, taken from the *Bat Mitigation Guidelines* (English Nature, 2004) and the Bat Conservation Trust (BCT) publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, 2016).

**Day roost:** a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

**Night roost:** a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

**Feeding roost:** a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

**Transitional / occasional roost:** used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

**Swarming site:** where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites

**Mating sites:** sites where mating takes place from later summer and can continue through winter.

**Maternity roost:** where female bats give birth and raise their young to independence.

**Hibernation roost:** where bats may be found individually or together during winter. They have a constant cool temperature and high humidity. Sites where hibernating bats have been confirmed by appropriate survey effort should be classed as 'hibernation confirmed'.

**Satellite roost:** an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

**Other:** roost types are interchangeable and not always easy to classify according to the nuances of certain species.

## **2.4 Limitations**

These surveys follow best practice guidance to confirm presence or likely absence of roosting bats and where present, characterise the roost. However, this information is collected at finite dates and times, and provides an indication of the conditions on site only. The use of the buildings and the site as a whole by bats, at all times cannot be established based on this information. Bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time.

The south elevation of B3 is in close proximity of the tree lined boundary, as such, a surveyor was not able to be placed there. An IR camera was placed in this area instead, to best cover the missing elevation. No bats were seen on the footage from this position on either surveys, therefore it can be concluded this limitation is not significant and does not alter the conclusions of this report.



### 3.0 Results and Evaluation

#### 3.1 Survey Results

The results of each survey are provided in the tables below and shown on the plan in Appendix 3.

Table 1: Survey results (first visit)

<b>Date</b>	28/07/2023	
<b>Building inspection prior to survey</b>	The roost features identified during the PRA were subject to an inspection prior to the BERS to check for evidence of roosting bats.	
<b>Start and end times</b>	20:39 – 22:24 Sunset: 20:54	
<b>Weather conditions</b>	<b>Start:</b> Temp: 20°C Relative Humidity: 71% Cloud Cover: 40% Wind: 4mph Rain: None	<b>End:</b> Temp: 18°C Relative Humidity: 76% Cloud Cover: 20% Wind: 3mph Rain: None
<b>Surveyor (position) As shown in Appendix 3</b>	<b>Jake Peacock</b> - three years of bat surveying experience- Position 1- observing the north and west elevations and roof structure of B1 <b>Remy St John-Reid</b> - three years bat surveying experience- Position 2- observing the south and east elevations and roof structure of B1 <b>Sam Cole</b> - three years bat surveying experience- Position 3- observing the north and west elevations and roof structure of B2 <b>Emma Cantu</b> - three years bat surveying experience- Position 4- observing the south and east elevations and roof structure of B2 <b>Victoria Eltringham</b> - ten years of bat survey experience- Position 5- observing the north and west elevations and roof structure of B3 <b>Emma Platts</b> - first year bat surveying- Position 6- observing the north and east elevations and roof structure of B3	
<b>IR position As shown in Appendix 3</b>	Position 1 - observing the south elevation of B3	
<b>Building reference</b>	<b>Surveyor position</b>	<b>Notes/observations:</b>
B1	1	<b>No roosting bats recorded.</b> Three commuting passes of common pipistrelles were observed from 21:17-21:54, travelling west to east and east to west.
B1	2	<b>No roosting bats recorded.</b> One common pipistrelle bat was heard but not seen at 21:19.
B2	3	<b>No roosting bats recorded.</b> Three commuting passes of common pipistrelles were observed from 21:17-21:54, travelling west to east and east to west.
B2	4	<b>No roosting bats recorded.</b> A common pipistrelle was heard but not seen at 21.19 and 21:51.

B3	5	<b>No roosting bats recorded.</b> The first bat detected was a common pipistrelle heard but not seen at 21:14. Another was observed at 21:19 to commute south to north of the site, flying over B2, and also at 21:21 from the southwest, heading towards the middle of the site. Finally, 21:24 until 21:54 displayed a single common pipistrelle to frequently forage around the south-west hedgerows and trees.
B3	6	<b>No roosting bats recorded.</b> One common pipistrelle was observed to frequently forage around the south-west treeline and hedgerow from 21:14 until 21:44. Several common pipistrelle commuting passes were seen from 21:23 until 21:57, travelling west to east and east to west of the site.
<b>Building reference</b>	<b>IR position</b>	<b>Notes/observations:</b>
B3	1	No bats seen on footage.

Table 2: Survey results (second visit)

<b>Date</b>	15/08/23	
<b>Building inspection prior to survey</b>	The roost features identified during the PRA were subject to an inspection prior to the BERS to check for evidence of roosting bats.	
<b>Start and end times</b>	20:07 – 21:52 Sunset: 20:22	
<b>Weather conditions</b>	<b>Start:</b> Temp: 19°C Relative Humidity: 87% Cloud Cover: 80% Wind: 0mph Rain: None	<b>End:</b> Temp: 17°C Relative Humidity: 79% Cloud Cover: 20% Wind: 1mph Rain: None
<b>Surveyor (position) As shown in Appendix 3</b>	<b>Victoria Eltringham</b> - ten years bat surveying experience- Position 3- observing the north and west elevations and roof structure of B2 <b>Rebekah Robertson</b> - three years bat surveying experience- Position 4- observing the south and east elevations and roof structure of B2 <b>Maddy Carter</b> - first year bat surveying- Position 5- observing the north and west elevations and roof structure of B3 <b>Olga Hermann</b> - [accredited agent to Natural England Level 1 bat licence number 2022-10627-CL17-BAT -three years bat survey experience- Position 6- observing the north and east elevations and roof structure of B3	
<b>IR position As shown in Appendix 3</b>	Position 1 - observing the south elevation of B3	
<b>Building reference</b>	<b>Surveyor position</b>	<b>Notes/observations:</b>
B2	1	<b>No roosting bats recorded.</b> Three commuting passes by common pipistrelle bats were seen between 20:55 and 21:31, using the same route of south of the site behind B2 towards north-west of the site.
B2	2	<b>No roosting bats recorded.</b> Three commuting passes of common pipistrelle bats were seen travelling above B2 roof, south to north-west of the site. Head but not seen common pipistrelles were recorded from 20:55 until 21:42.
B3	3	<b>No roosting bats recorded.</b> From 20:29 until 20:52 a common pipistrelle was seen foraging around the south-west hedgerows. A few common pipistrelle passes were subsequently recorded until 20:55, travelling west to east, east to west and south to north.
B3	4	<b>No roosting bats recorded.</b> The first bat recorded was a common pipistrelle at 20:28 foraging along the south-west hedgerow and treeline on site. This bat continued to constantly forage around this area until 20:52, then commuted west to east and east to west. Finally, infrequent foraging activity by a common pipistrelle was observed from 20:55 until 21:12.
<b>Building reference</b>	<b>IR position</b>	<b>Notes/observations:</b>
B3	1	No bats seen on footage.

#### 4.0 Conclusions, Impacts and Recommendations

Taking the field survey results into account, Table 3 presents an evaluation of the value of the buildings for roosting bats in relation to the proposed development which will comprise the demolition of the current outbuildings, to make way for the erection of three new build residential units.

Table 3: Evaluation of buildings on site for roosting bats

Building reference	Survey Results Summary	Impact Assessment	Recommendations	Biodiversity Enhancement Opportunities <sup>1</sup>
B1, B2 and B3- Roosting Bats	A likely absence of roosting bats is confirmed from B1, B2 and B3 as a result of the BERS.	<p>Bats are very unlikely to be roosting within these buildings and as such, there are not anticipated to be any impacts on bats in this location as a result of the proposed development.</p> <p>However, bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time. Any bats that begin using the building during the intervening period between the surveys being undertaken and works commencing could be injured or killed and their roosts destroyed.</p> <p>The proposed development could include the use of lighting which could spill on to bat roosting, foraging or commuting habitat and deter bats from using these areas.</p>	<p>A precautionary working method will be implemented during and post-development. This will include the following measures:</p> <ul style="list-style-type: none"> <li>• Works will be scheduled during the winter months (November to March) when bats are least likely to be present, insofar as is possible.</li> <li>• The potential roost features will be removed by hand (where a risk still remains following the pre-commencement inspection) prior to any mechanical demolition.</li> <li>• In the unlikely event that a bat or evidence of bats is discovered during the development all work must stop and a bat licensed ecologist contacted for further advice.</li> </ul> <p>A low impact lighting strategy will be adopted for the site during and post-development, which will include the following measures:</p> <ul style="list-style-type: none"> <li>• Light spill on to south hedgerow and east of the site should be avoided to not deter bats from using these areas for foraging and commuting.</li> <li>• Use narrow spectrum light sources to lower the range of species affected by lighting.</li> <li>• Use light sources that emit minimal ultra-violet light.</li> <li>• Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature &lt;4,200 kelvin.</li> <li>• Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal.</li> <li>• Light spill will be reduced via the use of low-level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also</li> </ul>	<p>The installation of one bat box at the site will provide additional roosting habitat for bats.</p> <p>The bat boxes will be installed on one of the south located trees. Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light.</p> <p>The bat box will be a specification suitable for both crevice dwelling and void dwelling bats such as Vivara Pro WoodStone Bat Box or a similar alternative brand. Suggested bat box position is shown on the Proposed Development plan in Appendix 1.</p>

<sup>1</sup> The Local Planning Authority has a duty to ask for enhancements under the NPPF (2021).

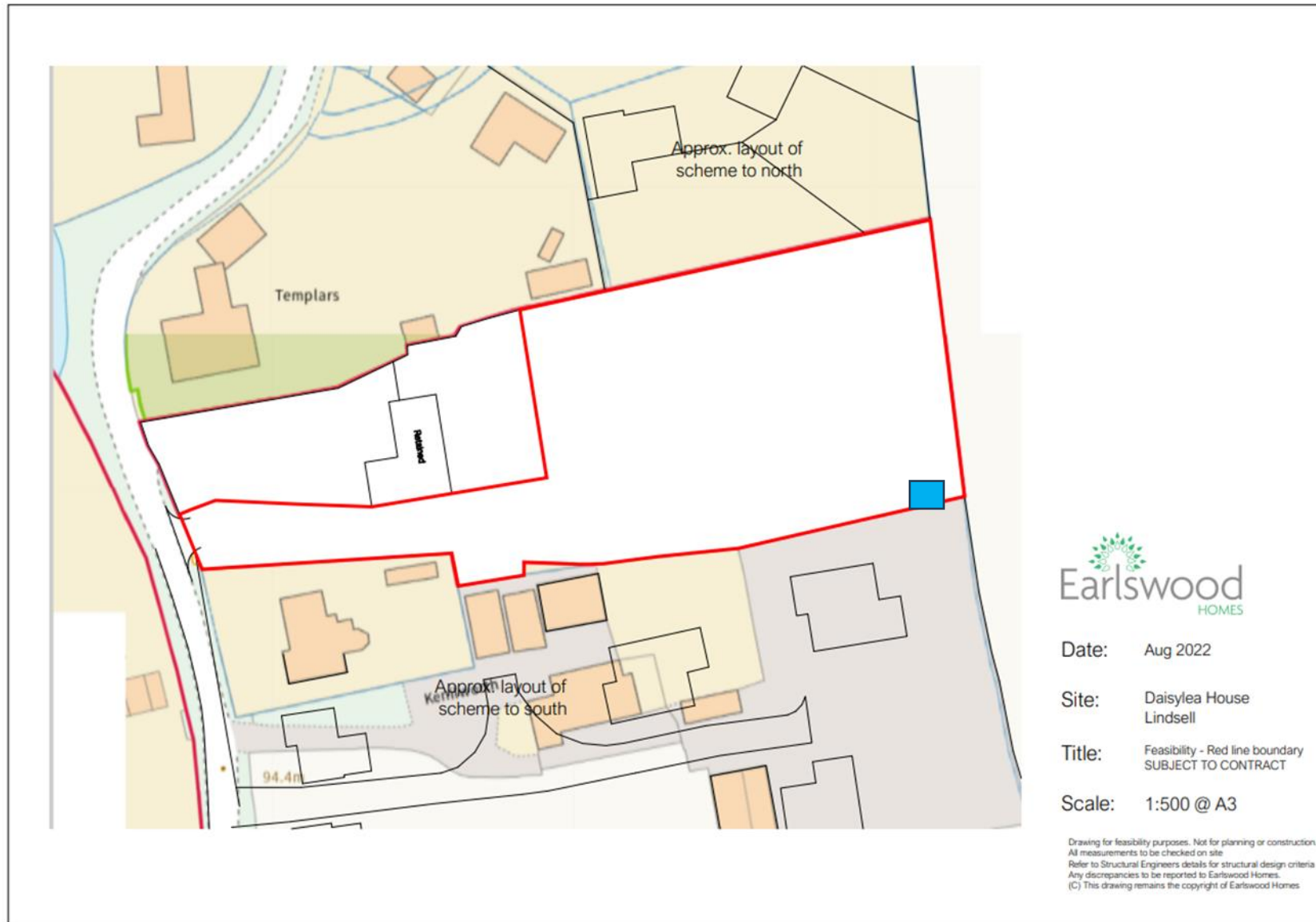
			<p>be directional to ensure that light is directed to the intended areas only.</p> <ul style="list-style-type: none"> <li>• External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on.</li> <li>• Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.</li> </ul>	
Nesting birds	No nesting birds were observed on either of the surveys.	The buildings offer no opportunities for nesting birds. As such there are no impacts anticipated as a result of the proposed development.	None,	Please refer to the PEA/PRA (Arbtech 2023).

## 5.0 Bibliography

- Collins, J. (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3<sup>rd</sup> edition, Bat Conservation Trust, London.
- Garland, L. & Markham, S. (2008) Is Important Bat Foraging and Commuting Habitat Legally Protected? <http://biodiversitybydesign.co.uk/cmsAdmin/uploads/protection-for-bat-habitat-sep-2007.pdf>
- Institution of Lighting Professionals (2018). Guidance Note 08/18 Bats and Artificial Lighting in the UK. Bats and the Built Environment Series Publication: [http://www.bats.org.uk/news.php/406/new\\_guidance\\_on\\_bats\\_and\\_lighting](http://www.bats.org.uk/news.php/406/new_guidance_on_bats_and_lighting).
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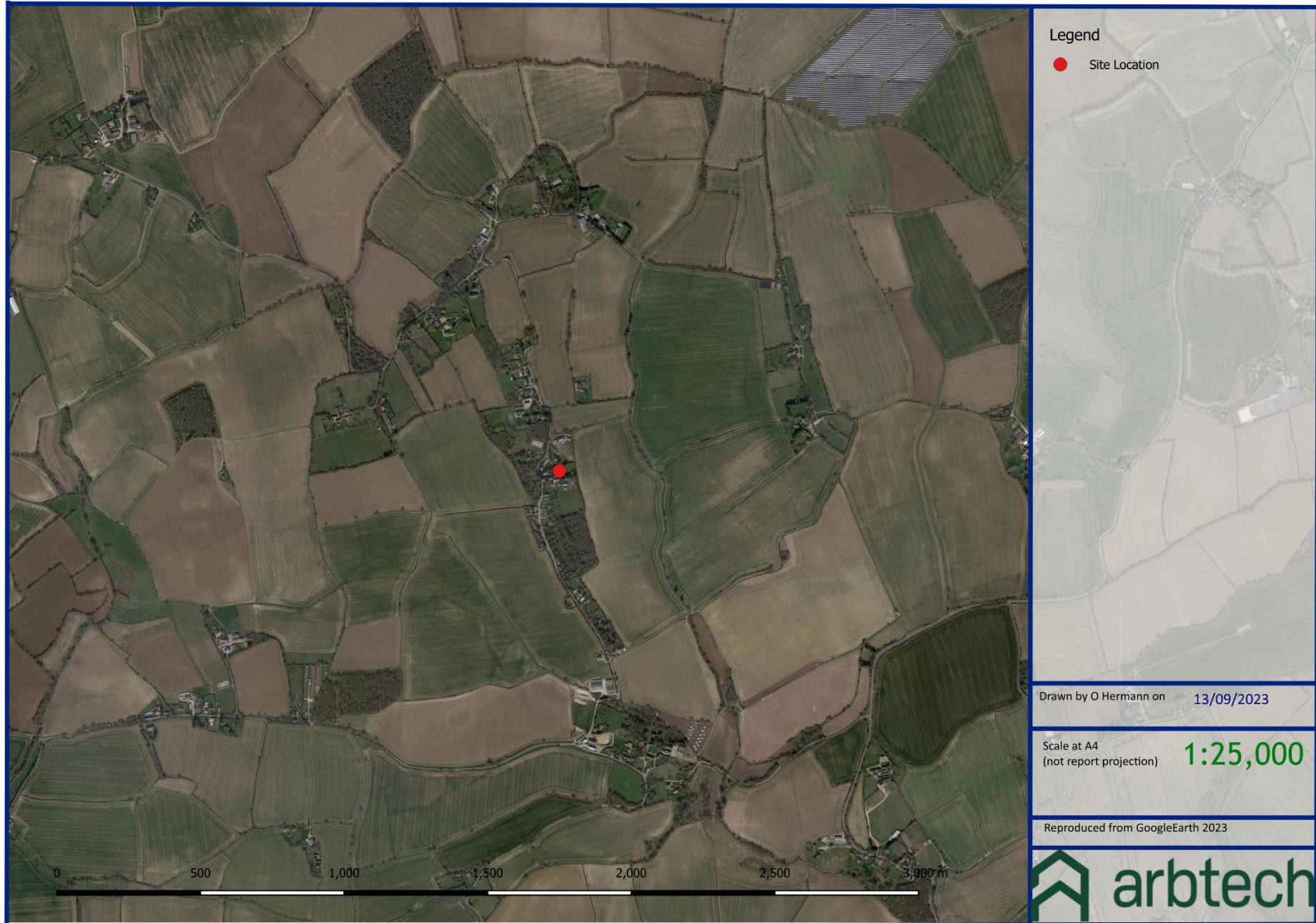
### Appendix 1: Proposed Development Plan

Including examples of bat enhancement such as a bat box (blue square).





### Appendix 2: Site Location Plan





### Appendix 3: BERS Plan



## Appendix 4: Legislation and Planning Policy Related to Bats

### LEGAL PROTECTION

All species of bat are fully protected under *The Conservation of Habitats and Species Regulations 2017* (as amended) through their inclusion on Schedule 2.

#### **Regulation 43: Protection of certain wild animals - offences**

(1) A person is guilty of an offence if they:

- (a) Deliberately captures, injures or kills any wild animal of a European protected species,
- (b) Deliberately disturbs wild animals of any such species,
- (c) Deliberately takes or destroys the eggs of such an animal, or
- (d) Damages or destroys a breeding site or resting place of such an animal,

(2) For the purposes of paragraph (1) (b), disturbance of animals includes in particular any disturbance which is likely—

- (a) To impair their ability:
  - (i) To survive, to breed or reproduce, or to rear or nurture their young; or
  - (ii) In the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- (b) To affect significantly the local distribution or abundance of the species to which they belong.

Bats are also protected under the *Wildlife and Countryside Act 1981* (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale

### NATIONAL PLANNING POLICY

#### **National Planning Policy Framework 2021**

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; measurable gains in biodiversity in and around developments are incorporated; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

### ***The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty***

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity'. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

### **EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS**

A European Protected Species Licence (EPSL) issued by Natural England will be required for works likely to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficiency/success to be monitored. The legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost (Garland & Markham, 2008).

There are 17 species of bat breeding in England and Natural England issues licences under Regulation 55 of the Habitats Regulations to allow you to work within the law.

Licences are issued for specific purposes stated in the Regulations, if the following three tests are met:

- The purpose of the work meets one of those listed in the Habitats Regulations (see below);
- That there is no satisfactory alternative;
- That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range

The Habitats Regulations permits licences to be issued for a specific set of purposes including:

- include preserving public health or public safety or other imperative reasons of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
- scientific and educational purposes;

- ringing or marking; and,
- conserving wild animals.

Development works fall under the first purpose and Natural England issues bat mitigation licences for developments.

### **EUROPEAN PROTECTED SPECIES POLICIES**

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.