



# Elite Ecology


Passionate about Ecology

## Watering Farm, Nettlestead



## Bat Activity Survey

July 2020

 01782 308418

 enquiries@eliteecology.co.uk

www.eliteecology.co.uk  
www.facebook.com/eliteecology  
www.twitter.com/eliteecology

Wellesley House, Wellesley Street,  
Stoke-on-Trent, ST1 4NF



Document Control			
Document Properties			
<b>Organisation</b>	Elite Ecology		
<b>Prepared For</b>	Mr Robin Alderton (HAT Projects Ltd)		
<b>Author</b>	Miss. Alexa Wolfs		
<b>Approved (1<sup>st</sup> Checker)</b>	Mr. Marek Fraczek		
<b>Approved (2<sup>nd</sup> Checker)</b>	Mr. Richard Millington		
<b>Title</b>	Watering Farm, Nettlestead Bat Activity Survey		
Version History			
Date	Version	Status	Description/Changes
06/07/2020	V1	Draft	First Draft
09/07/2020	V1	Final Report	Proof Read

## 0. Executive Summary

---

- 0.1** This report has been prepared at the request of Mr. Robin Alderton (HAT Projects Ltd.). It relates to the potential presence of bats and birds on the proposed re-development site located at Watering Farm, Nettlestead, Suffolk, IP8 4QL (Central OS Grid Reference: TM 08242 48958). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.
- 0.2** The current proposals have not been finalised. However, these works will involve either the conversion or demolition of the barns on site, thus affecting potential bat and bird habitats.
- 0.3** Due to the amount of potential ingress/egress points and suitable roosting features, the buildings were deemed as having a bat roost potential ranging from **low** to **moderate** and a nesting bird potential ranging from **negligible** to **moderate**. Further activity surveys were subsequently completed on the 22<sup>nd</sup> May and 5<sup>th</sup> June 2020.

### 0.4 Summary

#### Bat presence/absence

From the survey visits undertaken on the site, it can be concluded that building 2 (B2) at Watering Farm is in use as day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats. It can also be confirmed that common pipistrelle (*Pipistrellus pipistrellus*) and myotis (*Myotis* sp.) bats commute and forage around the site.

#### Bird presence/absence

From the survey visit undertaken on the site, it can be concluded that the surveyed structures contain no birds' nests. However, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

#### Ecological value of building units

The ecological value of the buildings has been deemed as **high** to bats due to the presence of a common pipistrelle (*Pipistrellus pipistrellus*) bat day roost. The ecological value of the buildings to birds has been deemed **negligible** due to the absence of birds' nests.

### Recommendations

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

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install bat compensatory features on the site in accordance with **Section 5 recommendations**.
- **Optional:** Install a variety of [bird boxes](#) around the site post development to enhance the site for the local bird populations.

**Contents**

<b>0. Executive Summary</b> .....	<b>2</b>
<b>1. Introduction</b> .....	<b>4</b>
<b>1.1 Report rationale</b> .....	4
1.2 Site description .....	4
1.3 Proposed works .....	4
1.4 Aims of surveys .....	5
<b>2. Survey Methodology</b> .....	<b>6</b>
2.1 Desktop Survey Methodology .....	6
2.2 Field Survey Methodology .....	6
2.3 Surveyors Information .....	9
2.4 Field surveys .....	10
<b>3. Results</b> .....	<b>11</b>
3.1 Desktop Survey Results .....	11
3.2 Field surveys .....	11
3.2.1 Habitat description .....	11
3.2.2 Building survey .....	12
3.2.3 Summary of the building inspection .....	14
3.2.4 DNA Results .....	15
3.2.5 Activity surveys .....	15
<b>4. Impact Assessment</b> .....	<b>17</b>
4.1 Constraints .....	17
4.2 Potential Impacts of the re-development .....	17
4.2.1 Designated sites .....	17
4.2.2 Bat Roosts .....	17
4.2.3 Bird Nests .....	17
4.2.4 Foraging and commuting habitat .....	18
<b>5. Recommendations</b> .....	<b>19</b>
<b>6. Summary</b> .....	<b>20</b>
<b>7. References</b> .....	<b>21</b>
<b>8. Appendices</b> .....	<b>22</b>
Appendix A: Site Plans .....	23
Appendix B: Artificial Lighting and Bats .....	24
Appendix C: Photographic Records .....	25
Appendix D: The Annual Bat Year (BCT) .....	35
Appendix E: Legislation and Policy .....	36
<b>9. Notice to Readers: Conditions of this Report</b> .....	<b>37</b>

## 1. Introduction

### 1.1 Report rationale

This report has been prepared at the request of Mr. Robin Alderton (HAT Projects Ltd.). It relates to the potential presence of bats and birds on the proposed re-development site located at Watering Farm, Nettlestead, Suffolk, IP8 4QL (Central OS Grid Reference: TM 08242 48958). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

### 1.2 Site description

The site is located in a rural setting in Nettlestead, a village in Mid-Suffolk to the north-west of Ipswich. Arable land, buildings, hard-standing ground, hedgerows and scattered trees are situated in the immediate vicinity of the surveyed structures. The habitats on site are considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting and foraging opportunities. This report relates to six agricultural structures at Watering Farm.

**Figure 1:** An aerial photograph of the surveyed structures (numbered) at Watering Farm, Nettlestead (as shown by the red outline). The arbitrary numbers for each building referred to throughout this report are also illustrated.



### 1.3 Proposed works

The current proposals have not been finalised. However, these works will involve either the conversion or demolition of the barns on site, thus affecting potential bat and bird habitats.

#### 1.4 **Aims of surveys**

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

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

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

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



## **2. Survey Methodology**

### **2.1 Desktop Survey Methodology**

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

### **2.2 Field Survey Methodology**

#### **2.2.1 Initial Site Survey**

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

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

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

#### **2.2.2 External Inspection**

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

This will allow for the determination of the following information:

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

### 2.2.3 Internal Inspection

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

This will allow for the determination of the following information:

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

### 2.2.4 Building/Vegetation Classification

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

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

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

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

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



### 2.2.5 Roost Categories

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

- **Day Roost:**  
A place where individual bats or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.
- **Feeding Roost:**  
A place where individual bats rest or feed during the night, but are rarely present in the day.
- **Hibernation Roost:**  
A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.
- **Maternity Roost:**  
A place where female bats give birth and raise their young to independence.
- **Mating Roost:**  
A place where mating/copulation takes place between male and female bats. These can continue through the winter months.
- **Night Roost:**  
A place where bats rest and/or shelter during the night, but will rarely be found here during the day. These can be used colonially or individually by the bats.
- **Satellite Roost:**  
These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.
- **Swarming Site:**  
A place where large numbers of bats come together during the latter summer months through until autumn. These sites are classed as being important mating areas.
- **Transitional/Occasional Roost:**  
A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

### 2.2.6 Bat Detector Survey (presence/absence survey)

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

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

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

## 2.3 Surveyors Information

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

**Mr Matthew Cotterill:** BSc (Hons), Ecologist, Natural England Bat Survey Licence Level 1.

**Mr Alex Fitzroy:** BSc (Hons), Ecologist, Accredited Agent.

**Mr Connor Wild:** BSc (Hons), Ecologist.

**Miss Alexa Wolfs:** MSc, Ecologist, Accredited Agent.

**Mr Benjamin Jolliffe:** BSc (Hons), Assistant Ecologist.

**Mr Taylor Hood:** BSc (Hons), Assistant Ecologist.

**Miss Justine Pugh:** BSc (Hons), Assistant Ecologist.

## 2.4 **Field surveys**

### 2.4.1 Site Surveys

Elite Ecology were not made aware of any previous site surveys.

### 2.4.2 Roost Surveys

The buildings at Watering Farm, Nettlestead were externally and internally inspected for the presence of bats and birds with the use of various types of equipment (including binoculars, torches, endoscopes and ladders) in full daylight. Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2 and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	PRA Survey of the Buildings – 25 <sup>th</sup> of October 2019. Daytime	Bat Activity Survey – 22 <sup>nd</sup> of May 2020. Dusk	Bat Activity Survey – 5 <sup>th</sup> June 2020. Dawn
Temp start:	13.0°C	18.4°C	7.2°C
Temp finish:	N/A	14.5°C	8°C
Humidity start:	89%	31%	64%
Humidity finish:	N/A	55%	64%
Cloud Cover start:	100%	40%	20%
Cloud Cover finish:	N/A	60%	20%
Wind Speed Average:	Low	Low	Low
Precipitation:	None	None	None

### **3. Results**

---

#### **3.1 Desktop Survey Results**

The ecological data search provided by SBIC revealed few protected bat species within the 2km search radius of Watering Farm, Nettlestead.

##### 3.1.1 Bats:

The ecological data search revealed records of seven bat species within the 2km search radius. The UKBAP species recorded in the search were brown long-eared (*Plecotus auritus*) bats. The non-BAP species recorded in the search were common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Natterer's (*Myotis nattereri*) and serotine (*Eptesicus serotinus*) bats. In addition to this, a few records of unidentified bat (*Chiroptera* sp.) specimens were revealed in the search.

The nearest record to the survey site was of brown long-eared (*Plecotus auritus*) bat droppings found on the neighbouring property directly to the east of Watering Farm.

##### 3.1.2 Birds:

No bird data has been ordered by Elite Ecology for this project. All UK birds can be split into three categories of conservation importance (red, amber and green – please see [RSPB](#) for more information). Elite Ecology feels that this survey effort accurately represents the birds that may be present on the survey site.

##### 3.1.3 Designated sites:

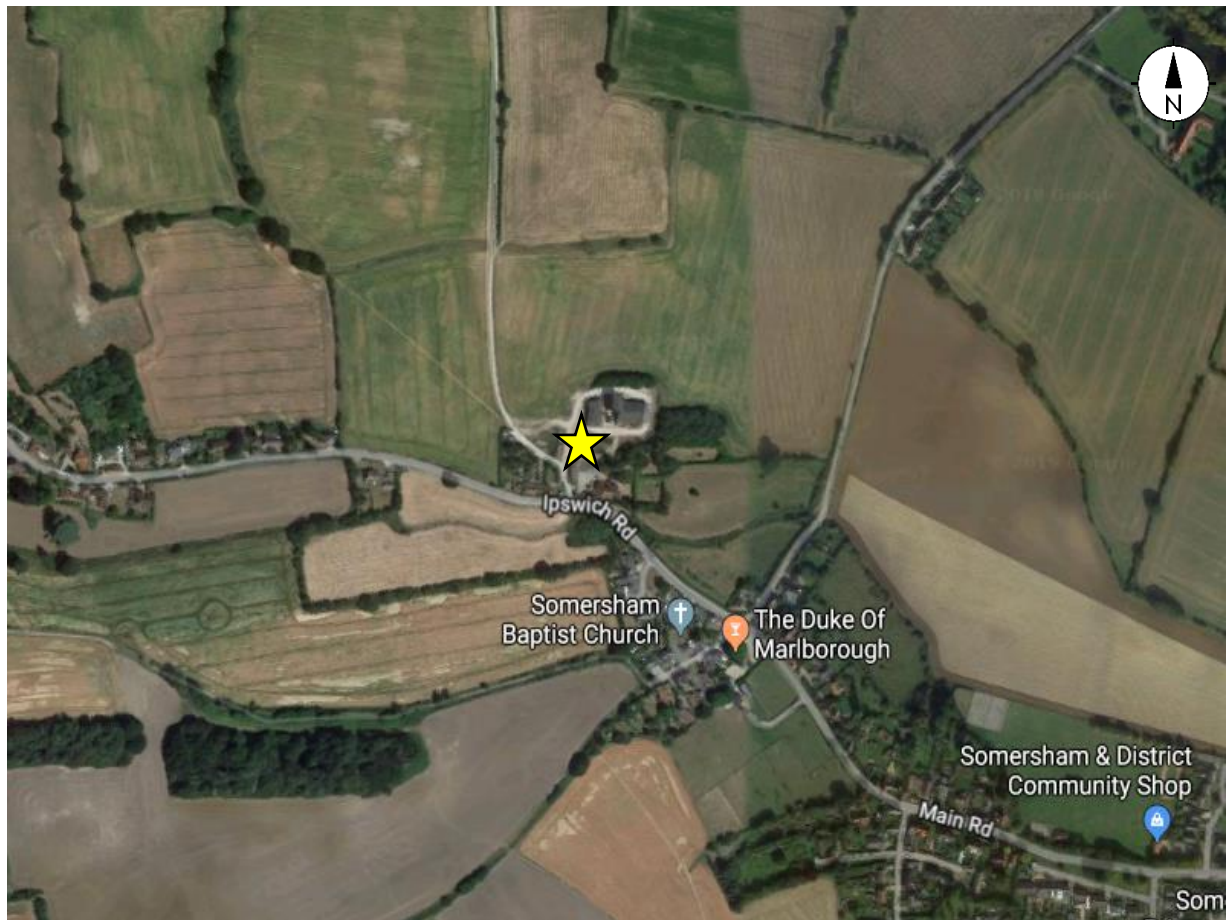
As the current proposals remain within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

#### **3.2 Field surveys**

##### 3.2.1 Habitat description

The site is located in a rural setting in Nettlestead, a village in Mid-Suffolk to the north-west of Ipswich. Arable land, buildings, hard-standing ground, hedgerows and scattered trees are situated in the immediate vicinity of the surveyed structures. Within the wider landscape, arable land, hedgerows, scattered trees, waterbodies and woodland are present. The habitats that are present in and around the site contain all the elements that are critical in both bat and bird life cycles.

**Figure 2:** An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to the structures at Watering Farm, Nettlestead.



### 3.2.2 Building survey

#### Building 1 (B1):

##### *External Inspection:*

This structure is an old garage and shed. It has a shed-style, corrugated metal roof. The external walls are constructed out of horizontal and vertical timber cladding which is damaged in multiple areas. Three garage doors to the south are also damaged or left open to facilitate access to the interior. The northern section of the building consists of an open shed. No bird nests were identified on the exterior of this building.

##### *Internal Inspection:*

Internally, the structure is used for storage purposes, with the roof being directly supported by timber rafters. Gaps in the external walls are also apparent from the inside. Due to the damaged garage doors, it is impossible to enter the building for internal inspection. No evidence of bats or birds' nests were observed in the internal areas that were visible from the outside.

Building 2 (B2):*External Inspection:*

This building is a single-storey dwelling. The external walls are of a brick construction on the northern elevation, a stone construction on the eastern elevation and rendered on the southern and western elevations. The roof is hipped and has clay tiles. No roof tiles are missing or dislodged and no substantial gaps are apparent. There are slight gaps between the wooden soffits and external walls, with one of the soffit boards missing leaving a large gap for bats and birds to use. A window on the southern elevation is partially open. No evidence of nesting birds or bat presence was identified externally.

*Internal Inspection:*

Internally, the building is used as an office block. The roof is supported by timber rafters and lined with felt, which is torn in a few areas. There is evidence of rat or mouse presence in the loft due to the identification of rodent droppings. No evidence of birds' nests or bats was found.

Building 3 (B3):*External Inspection:*

This structure is a high, single-storey building. The external walls are primarily constructed out of timber cladding, with a concrete block extension to the south. The structure has a pitched, corrugated metal roof. The cladding is damaged in multiple areas and doors are missing on the northern and western elevations, thus providing large entry points for wildlife. No evidence of nesting birds' were found externally.

*Internal Inspection:*

The building is empty inside and well-lit by daylight due to the missing doors. The roof is supported by timber beams and no roof lining is present. Bird droppings were found on the floor inside the building, although no evidence of bats or bird nests were identified.

Building 4 (B4):*External Inspection:*

This structure is a largely open shed with an enclosed section to the west. It is a wooden construction with a flat, corrugated metal roof. There is lead flashing above the door to the enclosed area, underneath which there is a slight gap. No evidence of nesting birds were found externally.

*Internal Inspection:*

The shed is used for storage purposes, with the roof supported by timber rafters. In the open area, no evidence of bats or birds' nests were found. There was no access to the enclosed section of the shed.



Building 5 (B5):*External Inspection:*

This barn is a brick and timber construction, with a pitched corrugated metal roof. The horizontal timber cladding is damaged or missing in multiple areas, providing large entry points for bats. No evidence of nesting birds were found externally.

*Internal Inspection:*

Internally, the structure is used for storage purposes, with the corrugated metal roof being supported by timber rafters. The gaps in the external walls of the structure are also apparent from the inside. No signs of bats or birds' nests were found internally.

Building 6 (B6):*External Inspection:*

This structure is a large, two-storey barn. The external walls are partially rendered and partially constructed out of horizontal timber cladding. The southern gable end is overgrown with dense common ivy (*Hedera helix*). The structure has a pitched corrugated metal roof. Finally, there are gaps between the timber cladding and underneath the eaves, thus providing potential entry points into the structure. No evidence of nesting birds were found externally.

*Internal Inspection:*

Within the barn there are multiple rooms present, some of which are used for storage purposes. The structure is supported by timber beams, with some roof lining material hanging loosely below the ceiling. In the southern portion of the building, the ceiling is constructed out of reused 5<sup>th</sup> Century timber. The first floor was not accessible for inspection at the time of the survey. No evidence of bats or birds' nests were found in the structure.

## 3.2.3 Summary of the building inspection

Due to the amount of potential ingress/egress points and suitable roosting features, the structures at Watering Farm, Nettlestead, were deemed as having the following bat and bird potential:

Building	Nesting Bird Potential	Bat Roost Potential	Number of bat activity surveys required	Number of surveyors required for bat activity survey
B1	Low	Low	1	2
B2	Negligible	Moderate	2	2
B3	Moderate	Low	1	2
B4	Moderate	Low	1	1
B5	Moderate	Low	1	2
B6	Moderate	Moderate	2	3

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

Bat Conservation Trust

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

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey <sup>a</sup> (structures). 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 DNA Results

No bat droppings were found around the surveyed structure, as such no DNA analysis was undertaken.

### 3.2.5 Activity surveys

Two activity surveys were undertaken on the buildings on the 22<sup>nd</sup> May 2020 and 5<sup>th</sup> June 2020.

#### Activity Survey 1 (22<sup>nd</sup> May 2020):

This survey was undertaken at dusk, with sunset being recorded at 20:15. During this survey, common pipistrelle (*Pipistrellus pipistrellus*) and myotis (*Myotis sp.*) bats were recorded commuting and foraging around the survey site. In addition, two common pipistrelle bats were observed emerging from building 2 (B2). The egress points were identified underneath a roof tile on the southern elevation and from the eastern elevations.

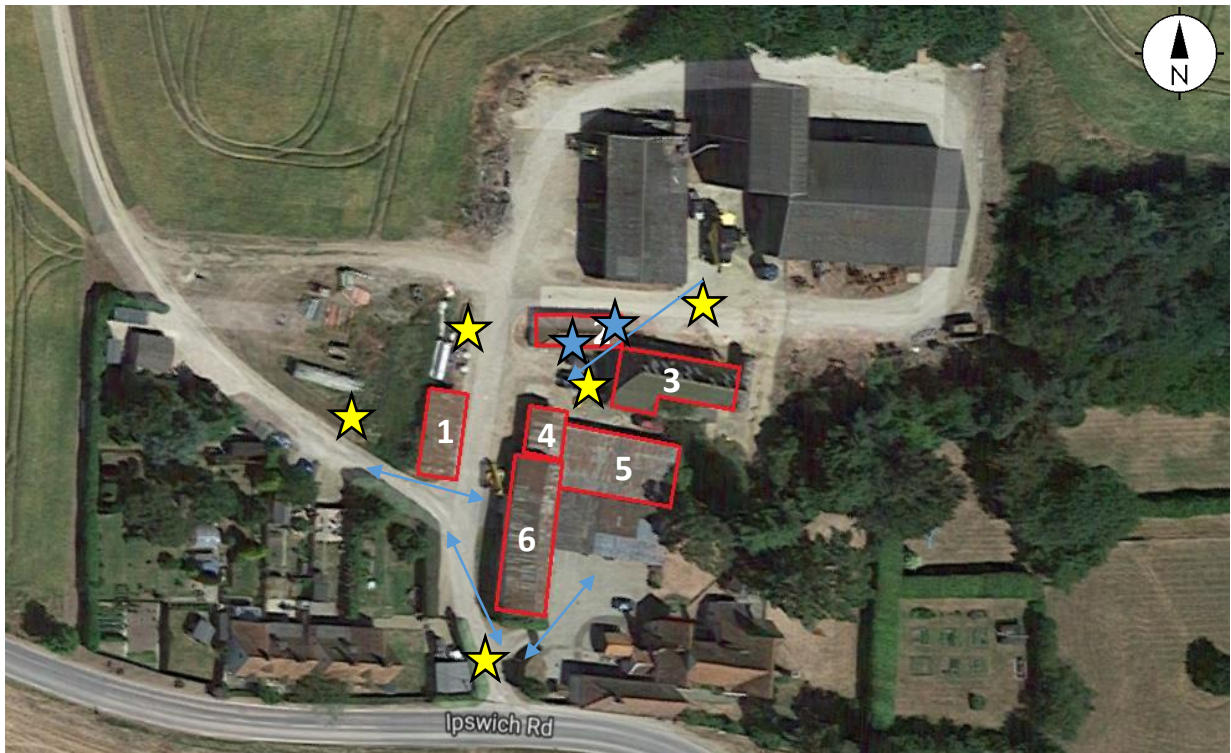
#### Activity Survey 2 (5<sup>th</sup> June 2020):

This survey was undertaken at dawn, with sunrise being recorded at 04:38. During this survey, one common pipistrelle (*Pipistrellus pipistrellus*) bat returned to roost in building 2 (B2) on the eastern elevation. Very little bat activity was recorded, with this common pipistrelle bat witnessed around the site before returning to roost.

#### Summary:

The activity surveys provided evidence that building 2 (B2) at Watering Farm is in use as **day roosts** for common pipistrelle (*Pipistrellus pipistrellus*) bats, with a peak count of two roosting individuals. In addition, the surveys provided evidence of common pipistrelle (*Pipistrellus pipistrellus*) and myotis (*Myotis sp.*) bat activity around the survey site.

**Figure 3:** An aerial photograph of the surveyed structure (red outline), the surveyor locations (yellow stars) and the identified bat flight paths (blue arrows). The common pipistrelle day roosts are indicated by a blue star.



## 4. Impact Assessment

### 4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

### 4.2 Potential Impacts of the re-development

The current proposals for Watering Farm have not been finalised but are likely to involve the conversion and/or demolition of the barns on site. The potential impacts of these works have been identified as follows:

#### 4.2.1 Designated sites

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

#### 4.2.2 Bat Roosts

Impact	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	High	High	High
Justification:	Roost of common pipistrelle ( <i>Pipistrellus pipistrellus</i> ) bats in the structure on site.	Roost of common pipistrelle ( <i>Pipistrellus pipistrellus</i> ) bats in the structure on site.	Roost of common pipistrelle ( <i>Pipistrellus pipistrellus</i> ) bats in the structure on site.
Any further action:	Species specific compensation and mitigation (please see <b>Section 5</b> ).	Species specific compensation and mitigation (please see <b>Section 5</b> ).	Species specific compensation and mitigation (please see <b>Section 5</b> ).

#### 4.2.3 Bird Nests

Due to the evidence of bird activity in some of the surveyed structures, the proposed scheme of works is deemed to be of a **low** effect to the local bird populations.

#### 4.2.4 Foraging and commuting habitat

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

## 5. Recommendations

---

### 5.1 Bats

From the site surveys, it has been established that building 2 (B2) on site is in use by **day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats**. A peak count of two common pipistrelle (*Pipistrellus pipistrellus*) bats were witnessed using the building. The roost is located underneath a roof tile on the southern and eastern elevations of the structure.

Prior to any works, a Natural England Development Licence is necessary to legally close or disturb the bat roost. This also applies to the felling of any trees within a 20m radius of the surveyed structure. Natural England licences take thirty working days once all the paperwork has been completed and submitted. As part of the licence, post-monitoring surveys will be required in subsequent years to assess whether any bats are using the compensatory measures installed around the site.

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

Post development, two [Eco Bat Boxes](#) or [Integrated Eco Bat Boxes](#) should be installed on the re-developed structure or on nearby mature trees, to provide further roosting opportunities for the common pipistrelle (*Pipistrellus pipistrellus*) bats. Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensorised lights triggered by large bodies should be incorporated.

### 5.2 Birds

As no nesting birds were found, no compulsory recommendations are apparent. However, a variety of [bird boxes](#) can be installed around the site to enhance the nesting opportunities for a variety of species within the local landscape.



## **6. Summary**

---

### **6.1 Bat presence/absence**

From the survey visits undertaken on the site, it can be concluded that building 2 (B2) at Watering Farm is in use as day roosts of common pipistrelle (*Pipistrellus pipistrellus*) bats. It can also be confirmed that common pipistrelle (*Pipistrellus pipistrellus*) and myotis (*Myotis* sp.) bats commute and forage around the site.

### **6.2 Bird presence/absence**

From the survey visit undertaken on the site, it can be concluded that the surveyed structures contain no birds nests. However, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

### **6.3 Ecological value of building units**

The ecological value of the buildings has been deemed as **high** to bats due to the presence of a common pipistrelle (*Pipistrellus pipistrellus*) bat day roost.

The ecological value of the buildings to birds has been deemed **negligible** due to the absence of birds' nests.

### **6.4 Recommendations**

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

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until October when the bats have gone to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install bat compensatory features on the site in accordance with **Section 5** recommendations.
- **Optional:** Install a variety of [bird boxes](#) around the site post development to enhance the site for the local bird populations.

## 7. References

---

Bat Conservation Trust (2016). *Bat Surveys – Good Practice Guidelines*. 3<sup>rd</sup> Edition. Bat Conservation Trust: London.

Berthinussen, A. & Altringham, J.D. (2012). The effect of a major road on bat diversity. *Journal of Applied Ecology* 49: p.p. 82–89.

Biodiversity Action Reporting System (2010). *Biodiversity Action in Staffordshire*. BARS. [Online]. Available at: [http://ukbap-reporting.org.uk/plans/map\\_county.asp](http://ukbap-reporting.org.uk/plans/map_county.asp).

BSBI (2008). *BSBI 2007 List*. [Online]. Available at: <http://www.bsbi.org.uk/html/database.html>.

*The Conservation of Habitats and Species Regulations 2010*. SI 2010/490.

*The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007*. SI 2007/1843, London: HMSO.

*Countryside and Rights of Way Act 2000* (c.37). London: HMSO.

Dietz, C., von Helversen, O. & Nill, D. (2009) *Bats of Britain, Europe and Northwest Africa*. London: A. C. Black

Hutson, A.M., Spitzenberger, F., Aulagnier, S., Coroiu, I., Karataş, A., Juste, J., Paunovic, M., Palmeirim, J. & Benda, P. (2008) *Pipistrellus pipistrellus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1

RSPB (2002). *The Population Status of Birds in the UK 2002-2007*

Rydell J & Racey, P A (1993). Street lamps and the feeding ecology of insectivorous bats. Recent Advances in Bat Biology, *Zool Soc Lond Symposium abstracts*.

UK Biodiversity Action Plan (2007). *UK List of Priority Species*. Joint Nature Conservation Committee. [Online]. Available at: <http://www.ukbap.org.uk/NewPriorityList.aspx>.

*Wildlife and Countryside Act 1981 (and amendments)* (c.69). London: HMSO.

## **8. Appendices**

---

**Appendix A:** Site Plans

**Appendix B:** Artificial Light and Bats

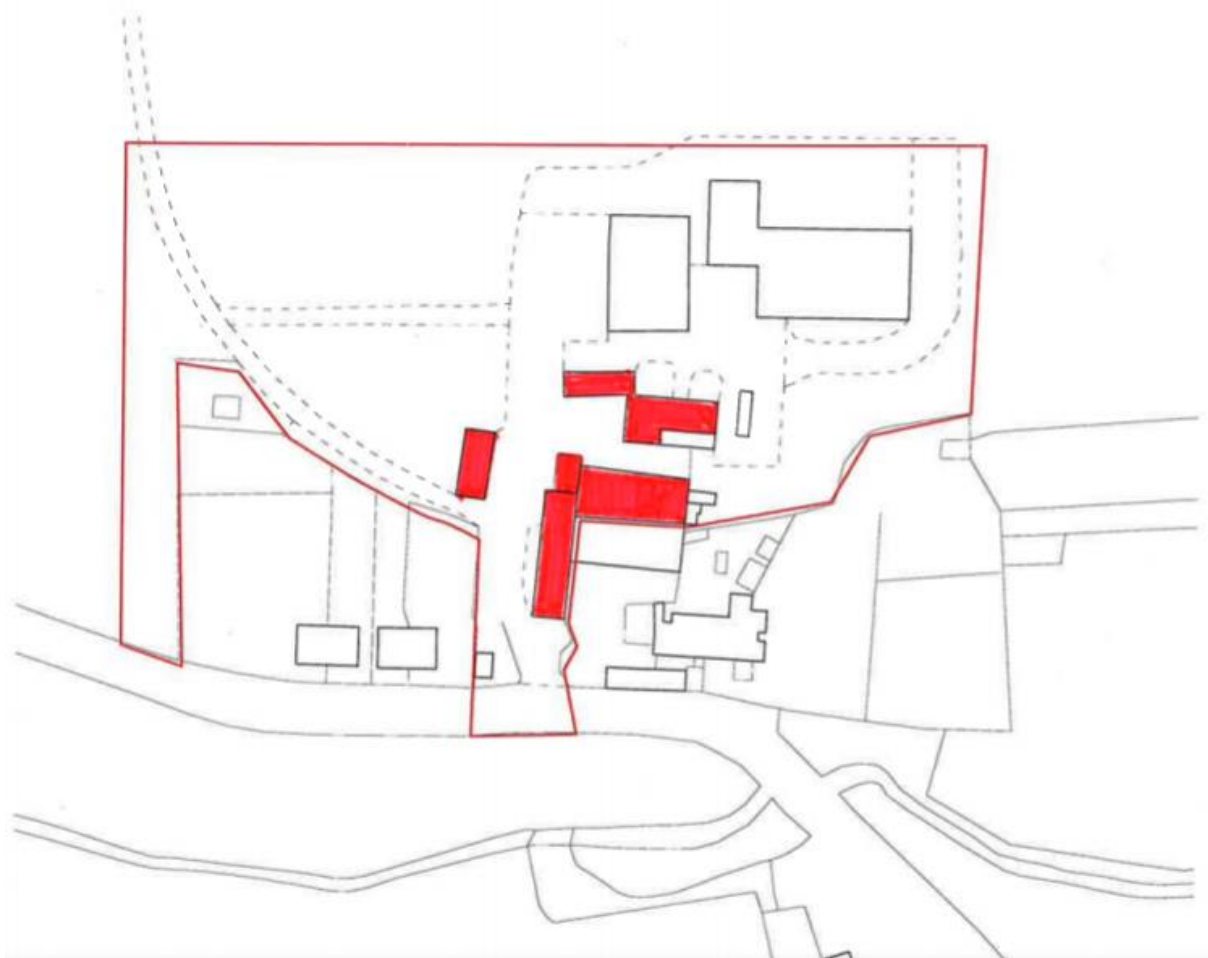
**Appendix C:** Photographic Records

**Appendix D:** The Annual Bat Year (BCT)

**Appendix E:** Legislation

**Appendix A: Site Plans**

Perimeter of site outlined in red.



## **Appendix B: Artificial Lighting and Bats**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



**Appendix C: Photographic Records**

**Plate 1:** A photograph of the eastern and southern elevations of B1.



**Plate 2:** An image of the western elevation of B1.





**Plate 3:** An internal view of B1.



**Plate 4:** The northern and western elevations of B2.



**Plate 5:** An image of the southern and western elevations of B2.



**Plate 6:** Detail of missing soffit board in B2.





**Plate 7:** The interior of B2.



**Plate 8:** The southern and western elevations of B3.





**Plate 9:** The northern elevation of B3.



**Plate 10:** An internal view of B3.





**Plate 11:** A photograph of the northern elevation of B4.



**Plate 12:** The northern elevation of B4 within the eastern portion.





**Plate 13:** The northern and eastern elevations of B5.



**Plate 14:** An internal view of B5.





**Plate 15:** The eastern elevation of B6.



**Plate 16:** The southern elevation of B6.





**Plate 17:** An internal view of B6, showing the room in northern section.



**Plate 18:** Another internal view of B6. This image illustrates the room in western section.















**Plate 19:** Another internal view of B6, showing the room in southern section.





**Appendix D: The Annual Bat Year (BCT)**

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

## **Appendix E: Legislation and Policy**

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

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2017
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

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

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

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

### **National Planning Policy Framework, Section 15:**

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

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

### **Biodiversity 2020:**

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

## **9. Notice to Readers: Conditions of this Report**

---

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

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

Elite Ecology undertake all site surveys with reasonable skill, care and diligence, within the terms of the contract that has been agreed with the client and abiding by the Elite Ecology Terms and Conditions. The actions of the surveyors on site, and during the production of the report, were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management.

The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

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

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

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

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