



Bat Emergence and Re-entry Surveys

1 Ferncroft Avenue, Hampstead, London, NW3 7PG

Space Construction Ltd

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Draft	1	Josephine McCarthy, Consultant	16/09/2019
Reviewed	1.1	Robert Oates Dip FDS Sc MBA MSc MArborA MRSB CBiol, Director	16/09/2019
Final	1.2	Josephine McCarthy, Consultant	16/09/2019

Arbtech Consultant's Contact details:

Josephine McCarthy
Consultant

Tel: 07719 549545 Email: josephinemccarthy@arbtech.co.uk

Arbtech Consulting Ltd
<https://arbtech.co.uk>

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Executive summary

Arbtech were commissioned by Space Construction to undertake bat emergence and re-entry surveys at 1 Ferncroft Avenue, Hampstead, London NW3. The surveys were completed on 10/09/2019. The aim of the assessment was to confirm the presence or likely absence of a bat roost and to provide a current status on all survey features. This includes providing evidence for species, numbers and levels of activity, to identify any entrance and egress points, and to gain an understanding of the activity of bats using the site in the local landscape.

The development proposals are for second storey extension of existing dwelling. A planning application is being prepared for submission to London Borough of Camden.

Recommendations - This is work you will need to commission (if any) to obtain planning permission and comply with legislation.

This building has a **negligible** likelihood of supporting roosting bats and no further surveys are required. The surveys undertaken to date in and around B1 provide sufficient information to inform a planning application. A European protected species mitigation licence (EPSML) **will not be required** to enable the proposed works to be lawfully undertaken. Appropriate justification for this assessment is provided in Section 3 of this report.

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1.0 Introduction and Context

1.1 Background

Arbtech were commissioned by Space Construction to undertake bat emergence and re-entry surveys at 1 Ferncroft Avenue, Hampstead, London NW3. The surveys were completed on 10/09/2019. The assessment is informed by the Bat Conservation Trust publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed) 2016).

These surveys were completed following recommendations made in the Preliminary Roost Assessment Survey report, (Arbtech, July 2019).

1.2 Site Context

The site is located at National Grid Reference TQ 25297 86032 and has an area of approximately 0.1ha. There is one building within the site boundaries. This building was surveyed as this will be affected by the proposed development.

1.3 Scope of the report

This report provides a description of the bat activity observed and recorded during each survey. The aim of the assessment was 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.

Robust data has been collected, following good practice guidelines, to inform an assessment of the potential impacts of the proposed development on bats, and inform mitigation and enhancements. This report provides information on constraints to the proposals as a result of roosting bats, and summarises any mitigation required to achieve planning permission, and statutory consent to comply with wildlife legislation.

To achieve the aims of the assessment, the following steps have been taken:

- A desk study has been carried out, including a request for information from the local bat group or records centre - please refer to the Preliminary Roost Assessment (Arbtech, July 2019).
- Field survey(s) has been undertaken, including an external survey and internal inspection.
- An outline of likely impacts on any known roosts has been provided, based on current development proposals.
- Recommendations for further survey and assessment have been made, along with advice on the requirements of a European protected species mitigation Licence (EPSML) application if appropriate.

A survey plan is presented in Appendix 1 showing the location of each surveyor and the bat activity observed and recorded during each survey, proposed plans in Appendix 2; and a summary of relevant legislation is presented in Appendix 3.

1.4 Project Description

The development proposals are for second storey extension of existing dwelling. A planning application is being prepared for submission to London Borough of Camden.

2.0 Methodology

2.1 Desk Study methodology

The desk study included a 2km radius review of statutory and non-statutory designated sites, Biodiversity Action Plan (BAP) Priority Habitats and granted EPSML records for bats held on Magic database. An assessment of the surrounding landscape structure was also completed using aerial images from Google Earth and OS maps.

Existing bat records relating to the site and a surrounding 2km radius are required to conform to national guidelines. The data search is confidential information that is not suitable for public release and was analysed and summarised in the Preliminary Roost Assessment Survey report. Please refer to the Preliminary Roost Assessment Survey report, (Arbtech, July 2019).

2.2 Site Survey methodology

The survey methods were informed by the recommendations presented in the Preliminary Roost Assessment Survey report, (Arbtech, July 2019). This survey identified the following survey requirements in line with best practice:

Table 1: Recommended surveys

Ref	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations
B1 -Bats	There are several external features on the building that provide suitable roosting opportunities for crevice dwelling bats in the form of raised roof tiles and gaps around the eaves of the building. There is good connectivity in the form of tree lines to nearby foraging resources including Leg of Mutton Pond located approximately 720m north-east. The presence of nearby foraging areas increases the likelihood of bat roosts being present in the building. Therefore, the proposed development presents an unacceptable risk of harm to bats if the development proceeds without further survey effort.	As the proposals include raising the height of the roof, any bat roosts present will be destroyed. This could result in death, injury or disturbance of bats.	Three bat emergence and re-entry surveys are required during the active bat season (May – September) to confirm presence or likely-absence of a bat roost in the building. At least two of the surveys should be completed during the optimal survey period mid-May to August inclusive. Sub-optimal: early May and September. One of these surveys must be a dawn re-entry survey. Two surveyors are required to provide full coverage of the Building.

The surveys involved surveyors positioned around the building ensuring that all elevations and roof sections with suitable roosting features could be clearly observed. Particular attention was paid to the areas of the building identified as providing suitable access points to bat roosts. The location of each surveyor during each survey is shown in Appendix 1. Each surveyor was assigned an area of the building to observe for the duration of the survey. Surveyors used heterodyne and frequency division bat detectors, and Wildlife Acoustics EM3+ and Echo Meter Touch detectors connected to iPads. 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 hand held radio for communication between surveyors to assist with confirming ambiguous bat activity e.g. a bat emergence or a bat passing over the building.

In accordance with the latest bat survey guidelines (Collins, J. 2016) dusk emergence surveys commenced 15 minutes before sunset and continued for 1½ - 2 hours after sunset – depending upon bat activity and surveyor visibility. Dawn re-entry surveys commenced 2 hours before sunrise and continued until 15 minutes after sunrise.

Surveys were completed during optimal weather conditions i.e. when temperatures were above 10°C, with no rain or strong winds, as these adverse weather conditions can impact upon bat emergence and foraging behaviour.

2.3 Surveyors

The lead surveyor is Josephine McCarthy (Natural England Bat Licence Number: 2019-41480-CLS-CLS) and was assisted by experienced surveyors with several years of bat survey experience.

Two surveyors were used to provide sufficient cover of the building during each survey. 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 1.

2.4 Limitations

These surveys follow best practice guidance to confirm presence/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 building and the site as a whole by bats, at all times cannot be established based on this information.

There were no specific limitations to the survey.

3.0 Results and Evaluation

3.1 Survey Results

The results of each survey are provided in the tables below.

Table 2: Survey results

Date		12/08/19		
Start and End Times		04:00 – 06:00 Sunrise: 05:40		
Weather Conditions		<table border="0"> <tr> <td>Start: Temp: 15.8 Relative Humidity: 86% Cloud Cover: 20% Wind: 3.3mph Rain: None</td> <td>End: Temp: 14.3°C Relative Humidity: 91% Cloud Cover: 24% Wind: 1.8mph Rain: None</td> </tr> </table>	Start: Temp: 15.8 Relative Humidity: 86% Cloud Cover: 20% Wind: 3.3mph Rain: None	End: Temp: 14.3°C Relative Humidity: 91% Cloud Cover: 24% Wind: 1.8mph Rain: None
Start: Temp: 15.8 Relative Humidity: 86% Cloud Cover: 20% Wind: 3.3mph Rain: None	End: Temp: 14.3°C Relative Humidity: 91% Cloud Cover: 24% Wind: 1.8mph Rain: None			
Surveyor (position) As shown in Appendix 1		Josephine McCarthy - Natural England Bat Licence Number: 2019-41480-CLS-CLS. (Position 1 – observing the south east elevation and roof structure of B1). Fay Brotherhood – (Position 2 – observing the north west elevation and roof structure of B1).		
Building Reference	Surveyor Position	Notes/observations: N/A		
B1	1	The first bat activity observed was a commuting pass by a common pipistrelle heard not seen at 04:22 A second pass by a common pipistrelle with some foraging activity was heard not seen at 04:31 A pass by a common pipistrelle flying over the roof from north to south at 05:28		
B1	2	A pass by a common pipistrelle was heard not seen at 04:58		

Table 3: Survey results

Date		26/08/19		
Start and End Times		19:45 – 21:35 Sunset: 20:00		
Weather Conditions		<table border="0"> <tr> <td>Start: Temp: 27.3°C Relative Humidity: 48% Cloud Cover: 63% Wind: 2mph Rain: None</td> <td>End: Temp: 23°C Relative Humidity: 58% Cloud Cover: 70% Wind: 2.2mph Rain: None</td> </tr> </table>	Start: Temp: 27.3°C Relative Humidity: 48% Cloud Cover: 63% Wind: 2mph Rain: None	End: Temp: 23°C Relative Humidity: 58% Cloud Cover: 70% Wind: 2.2mph Rain: None
Start: Temp: 27.3°C Relative Humidity: 48% Cloud Cover: 63% Wind: 2mph Rain: None	End: Temp: 23°C Relative Humidity: 58% Cloud Cover: 70% Wind: 2.2mph Rain: None			
Surveyor (position)		Josephine McCarthy - Natural England Bat Licence Number: 2019-41480-CLS-CLS. (Position 1 – observing the south east elevation and roof structure of B1).		

As shown in Appendix 1		Fay Brotherhood – (Position 2 – observing the north west elevation and roof structure of B1).
Building Reference	Surveyor Position	Notes/observations: N/A
B1	1	The first bat activity recorded was a distant pass by a noctule at 20:01, heard not seen. It was too distant to determine direction of flight. A pass by a common pipistrelle along the eastern elevation of the house and continued south at 20:23 A pass by a common pipistrelle with some foraging activity over the rear garden at 20: 41, and again at 20:50
B1	2	The only bat activity observed was a pass by a common pipistrelle at 20:22. The bat flew from the south, over the roof and continued north.

Table 4: Survey results

Date	10/09/2019	
Start and End Times	19:15-21:00 Sunset: 19:34	
Weather Conditions	Start: Temp: 17.2°C Relative Humidity: 56% Cloud Cover: 56% Wind: 4.6mph Rain: None	End: Temp: 15.2°C Relative Humidity: 78% Cloud Cover: 66% Wind:3.3mph Rain: None
Surveyor (position) As shown in Appendix 1	Josephine McCarthy - Natural England Bat Licence Number: 2019-41480-CLS-CLS. (Position 1 – observing the south east elevation and roof structure of B1). Fay Brotherhood – (Position 2 – observing the north west elevation and roof structure of B1).	
Building Reference	Surveyor Position	Notes/observations:
B1	1	The first bat activity observed was a commuting pass by a common pipistrelle, flying from the west and continued east across the garden at 20:13 Two further passes by common pipistrelles were heard not seen, at 21:35 and 20:38. By this point visibility was poor but direction of echolocation calls indicated the bats were commuting from behind the surveyor to the west.
B1	2	The first bat activity recorded was a distant pass by a common pipistrelle at 20:13. A common pipistrelle was observed to fly over the roof from the south at the eastern elevation and continued north at 20:35

4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

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 mitigation licence (EPSML) application to Natural England.

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

The surveys undertaken to date in and around B1 provide sufficient information to inform a planning application. A European protected species mitigation licence (EPSML) **will not be required** to enable the proposed works to be lawfully undertaken. Appropriate justification for this assessment is provided in Section 3 of this report.

4.2 Evaluation

The following recommendations are provided taking the desk based assessment and site survey results into account.

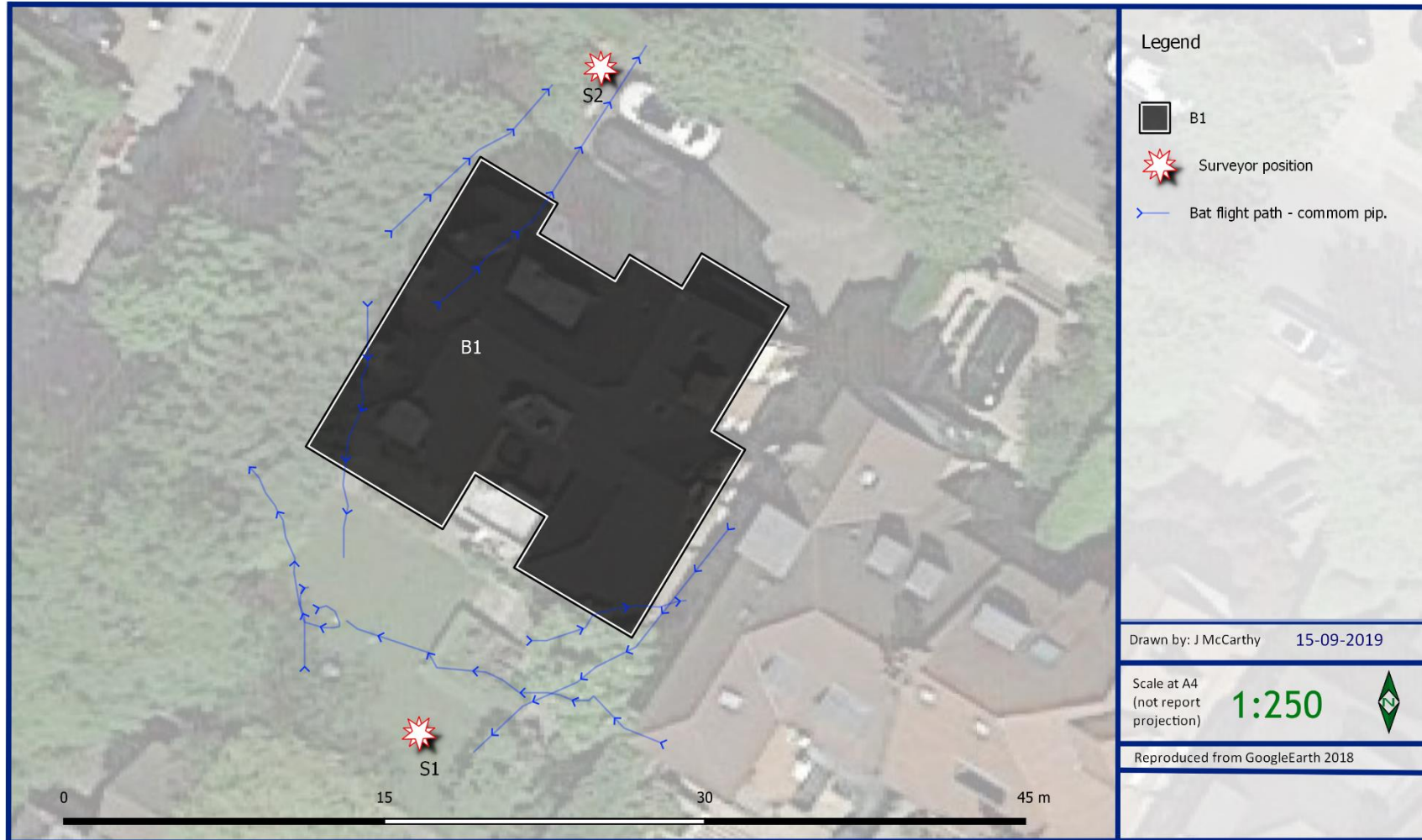
Table 5: Evaluation of the structure on site

Ref	Survey conclusions	Foreseen impacts	Recommendations / Mitigation	Enhancements The Local Planning Authority has a duty to ask for enhancements under the NPPF (July 2018)
B1-Bats	B1 - has a negligible likelihood of supporting bats. Bats are very unlikely to be roosting within B1 and as such, there are not anticipated to be any impacts on bats as a result of the proposed works.	None	In the unlikely event that bats are unexpectedly found during any stage of the development, work should stop immediately and a suitably qualified ecologist should be contacted to seek further advice.	<p>The developed site can be enhanced for the bats by installing of a minimum of two bat boxes on the site boundaries e.g.</p> <ul style="list-style-type: none"> Schwegler 2F Bat Box Schwegler 1FF Bat Box Schwegler 2FN Bat Box Improved Cavity Bat Box <p>Bat boxes should be positioned 3-5m above ground level facing south or south-westerly with a clear flight path to and from the entrance.</p> <p>Bat boxes should also be positioned away from any artificial light sources.</p>

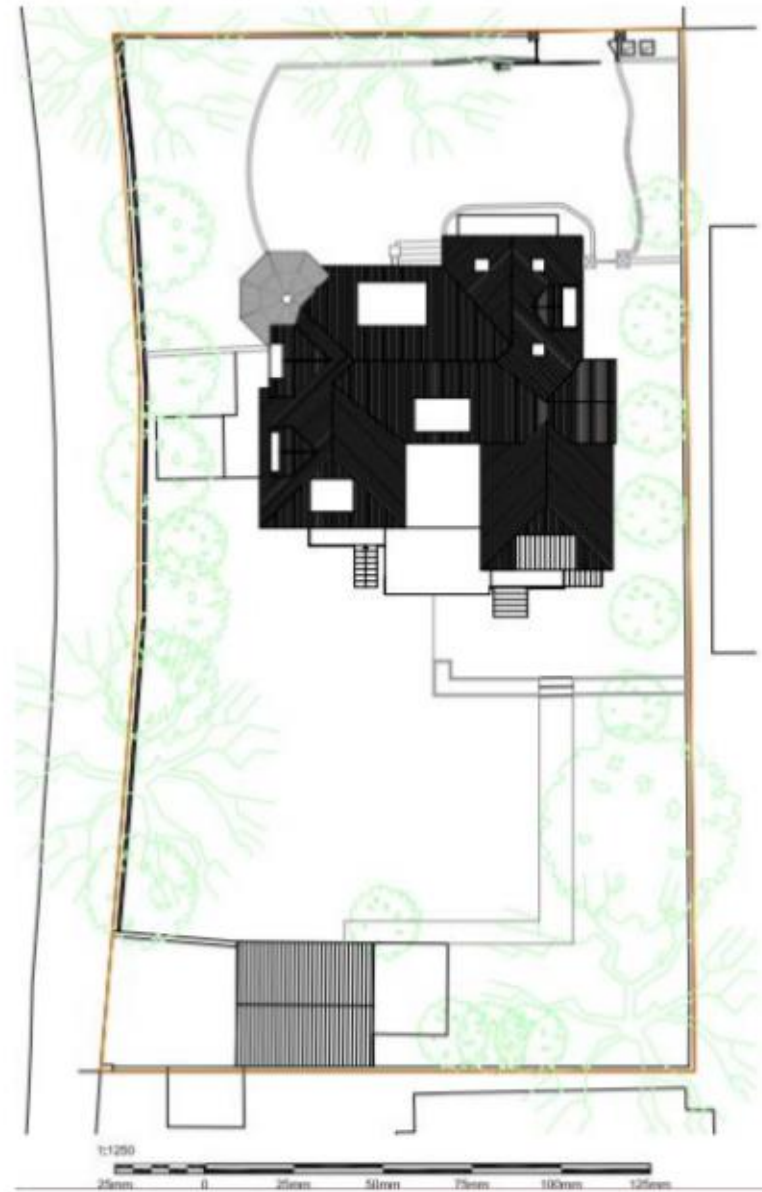
5.0 Bibliography

- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected?
- Google Earth (2019) accessed on 15/09/2019.
- Magic database (2019) <http://www.magic.gov.uk/MagicMap.aspx> accessed on 15/09/2019.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

Appendix 1: Survey Plan



Appendix 2: Proposed Site Plan



Appendix 3 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* 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 01.04.1996)* 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 (ENGLAND)

National Planning Policy Framework 2017

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 UK Biodiversity Action Plan priority species) 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; opportunities to incorporate biodiversity in and around developments are encouraged; 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 on development works:

A European protected species mitigation (EPSM) licence 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
- conserving wild animals

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