Bat Survey - Emergence and Activity Surveys

Replacement Industrial Unit (Grade A), New Mills Road,

Hayfield, High Peak, Derbyshire, SK22 2EU

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Executive summary

Arbtech Consulting Ltd. undertook two dusk emergence surveys and one dawn swarm survey at Replacement Industrial Unit (Grade A), New Mills Road, Hayfield, High Peak, Derbyshire, SK22 2EU. The aim of the assessment was to confirm the presence/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 to demolish the surveyed building.

Survey feature	**Recommendation**
B1	No further survey effort is required at this building.

For full justification of these recommendations, please go straight to section 4.0 Conclusions, Impacts and Recommendations. Otherwise, the full report starts below.

Contents

1.0 Introduction and Context

1.1 Background

Arbtech were commissioned by Simon Jones to undertake a suite of emergence/re-entry and activity surveys at Replacement Industrial Unit (Grade A), New Mills Road, Hayfield, High Peak, Derbyshire, SK22 2EU. The assessment is informed by the Bat Conservation Trust publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed.) 2016).

This survey was completed following recommendations made in the Preliminary Roost Assessment Survey report (Arbtech Consulting Ltd. November 2016).
No previous activity surveys have been completed at the site by Arbtech Consulting Ltd. An internal and external assessment of the building was completed prior to the first emergence survey on 11/10/2016.

1.2 Site Context

The site is located at National Grid Reference SK034869, and has an area of approximately 330sqm. There is one building assessed within the site boundary. Building B1 was the subject of the survey as this will be impacted by the proposed development.

1.3 Scope of the report

This report provides a description of the bat activity observed and recorded during the survey. The aim of the assessment was to characterise any roosts present including species, numbers and access points, roosting locations, timing of use and type of roost, 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 enhancement. 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 Derbyshire Wildlife Trust - please refer to the Preliminary Roost Assessment Survey report (Arbtech, November 2016)
- A field survey 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 European Protected Species Mitigation Licensing 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, the proposed plan is included in Appendix 2 (where available) and a summary of relevant legislation can be found in the Appendix 3.

1.4 Project Description

This report is prepared in support of a planning application for: the survey building to be demolished. The proposed site plan is included in Appendix 2 (where available).

2.0 Methodology

2.1 Desk Study methodology

Existing bat records relating to the site and a surrounding 2km radius (the study area) are required to conform to national guidelines and these have been requested from Derbyshire Wildlife Trust. A review of the landscape structure using aerial images from Google Earth and OS maps, and designated sites, habitat and granted EPSL records held on Magic.gov.uk was completed to inform the PRA Survey. Please refer to the Preliminary Roost Assessment Survey report (Arbtech, November 2016).

2.2 Site Survey methodology

The survey methods were informed by the Preliminary Roost Assessment Survey completed by Arbtech Consulting Ltd (October 2016). This survey identified the following survey requirements in line with best practice:

B1: Low value for a small number of bats given the number of droppings found – three roost characterisation surveys required.

The surveys involved surveyors positioned around the building ensuring that all elevations and roof sections/sides of the building 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 a Wildlife Acoustics Echo Meter Touch detector connected to an iPads. Bat echolocation calls recorded during the surveys were analysed using Wildlife Acoustics sound analysis software Kaleidoscope V3.1.7 when required. That is, the Echo Meter Touch includes an Auto ID bat species, however this is not 100% accurate and further post-survey sound analysis is often required to confirm species misidentified by the Auto ID software during the survey. Surveyors also used survey record sheets, pens/pencils, head torches for recording all activity observed during the surveys including foraging and commuting behaviour as well as emergence/re-entries by bats. 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^{o}C, with no rain or strong winds, as these environmental variables can impact upon bat emergence and foraging behaviour.

2.3 Surveyors

The lead surveyor was David Nixon Natural England bat licence number [2015-18322-CLS-CLS] and was assisted by one other surveyor whom has bat survey experience. Two surveyors were used to provide sufficient cover of the one building during the survey. The designated position of each surveyor during each survey is detailed in the tables in Section 3.6 below, and shown on the plan in Appendix 1.

2.4 Survey Timings and Weather Conditions

The dates and times of each survey are presented in Table 1, along with sunset/sunrise times as applicable and the weather conditions at the start and end of each survey.

Table 1: Survey schedule and weather conditions

Reference	**Survey date**	**Survey Start and End Times** **Sunset/sunrise time**	**Weather Conditions Start**	**Weather Conditions END**
B1	12/05/17	20:45 – 23:00 Sunset: 20:58	Temp: 18°C Humidity: 55% Cloud Cover: 40% Wind: 10kph Rain: None	Temp: 14°C Humidity: 60% Cloud Cover: 140% Wind: 10kph Rain: None
B1	28/05/2017	21:00 – 23:15 Sunset: 21:22	Temp: 19°C Humidity: 55% Cloud Cover: 60% Wind: 3kph Rain: None	Temp: 12.5°C Humidity: 60% Cloud Cover: 40% Wind: 2kph Rain: None
B1	15/06/2017	02:40 – 05:00 Sunrise: 04:40	Temp: 13°C Humidity: 55% Cloud Cover: 15% Wind: 4kph Rain: None	Temp: 14°C Humidity: 60% Cloud Cover: 30% Wind: 4kph Rain: None

2.5 Limitations – evaluation of the methodology

This survey follows best practice guidance to confirm presence/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/structure/tree, 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

3.6 Survey Results

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

Table 2: Survey results – Dusk Emergence Survey

Date		12/05/17
Start and End Times		20:45 – 23:00 Sunset: 20:58
Surveyor (position) **As shown in Appendix 1**		**David Nixon** - Natural England Bat Licence Number: 2015-18322-CLS-CLS (Position 2 – observing the north-west elevation and roof structure of B1) **Nathan Rimmer** - (Position 1 – observing the south-east elevation and roof structure of B1)
Building Reference	**Surveyor Position**	**Notes/observations:**
B1	1	A foraging pass by two common pipistrelles at 21:10 flying along the tree linage north of the site along the walkway. One noctule was heard at 21:33. Between 21:40 – 22:00, common pipistrelles constantly foraged amongst the tree linage north of the site along the walkway.
B1	2	One commuting pipistrelle was heard at 21:37. One noctule was heard at 21:33.

Date		28/05/17
Start and End Times		21:00 – 23:15 Sunset: 21:22
Surveyor (position) **As shown in Appendix 1**		**David Nixon** - Natural England Bat Licence Number: 2015-18322-CLS-CLS (Position 2 – observing the north-west elevation and roof structure of B1) **Nathan Rimmer** - (Position 1 – observing the south-east elevation and roof structure of B1)
Building Reference	**Surveyor Position**	**Notes/observations:**
B1	1	Common and soprano pipistrelles constantly foraged along the tree linage north of the site along the walkway between 21:30 and 22:05 One common pipistrelle made 2 passes at 22:15 – during both passes, the bat was foraging.
B1	2	Two common pipistrelles passed over the survey building at 22:30 in a northerly direction towards the trees adjacent to the building's north elevation. One faint commuting noctule was heard at 22:00

Date		15/06/17
Start and End Times		02:40 – 05:00 Sunrise: 04:40
Surveyor (position) **As shown in Appendix 1**		**David Nixon** - Natural England Bat Licence Number: 2015-18322-CLS-CLS (Position 2 – observing the north-west elevation and roof structure of B1) **Nathan Rimmer** - (Position 1 – observing the south-east elevation and roof structure of B1)
Building Reference	**Surveyor Position**	**Notes/observations:**
B1	1	Three common pipistrelles were seen and heard foraging along the tree linage north of the survey building, adjacent to the walkway.
B1	2	One common pipistrelle was heard foraging at 03:00 One common pipistrelle was heard foraging at 03:15 Two common pipistrelles were heard and seen foraging at 04:00 One soprano pipistrelle was seen commuting, flying over the survey building towards the adjacent northern tree linage at 04:20

4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

The surveys undertaken to date in and around B1 provide sufficient information to inform bats are not using B1 for roosting purposes. No further bat activity surveys are required in order for proposed works to be carried out.

4.2 Evaluation

Taking the desk based assessment and site survey results into account, the following recommendations are reached for each site survey feature.

Table 5: Evaluation of building on site

Ref	Survey assessment conclusions (Type of bat roost present)	Foreseen impacts	Recommendations / Mitigation	Enhancements The Local Planning Authority has a duty to ask for enhancements under the NPPF and circular 06/2005: Biodiversity and Geological Conservation. Para.99
B1/	No roost confirmed	No bat roost confirmed in B1. 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.	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. Arbtech Consulting Ltd recommend the following: • Lighting will be controlled across the developed site. Research into the effects of artificial lighting on bats has shown that it can impact upon bat emergence times and lead to a reduced foraging time • As bats are faithful to their roost sites, often returning to the same site for many years, the impact of lighting on emergence times and in turn reduced foraging times can ultimately result in the roosts being abandoned. • Key areas of the site which are sensitive to artificial lighting are the northern site boundary comprising an important tree linage for foraging and commuting bats. • The lighting on the developed site will be limited to the proposed development building only. No lighting will be installed that shines directly towards the line of trees located on the northern site boundary, thereby maintaining the existing dark	Sites with likely-absence of bat roosts use the text below. The developed site can be enhanced for the bat species observed to be foraging and commuting across the site during the surveys by installing of a minimum of two bat boxes on mature trees around the site boundaries/retained buildings e.g. 2F Schwegler Bat Box (trees only) 1FF Schwegler Bat Box (buildings & trees) 2FN Schwegler Bat Box (trees only) Improved Cavity Bat Box (buildings & trees) Bat boxes should be positioned 3-5m above ground level facing in a south/south-westerly direction with a clear flight path to

			areas within the developed site for bats. • Low impact lighting strategies will be adopted from the guidance outlined in the Bat Conservation Trust "Bats and Lighting" publications: http://www.bats.org.uk/pages/bats_and_lighting.html • The lighting on the site will: - Use narrow spectrum light sources to lower the range of species affected by lighting - Use light sources that emit minimal ultra-violet light - 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 short wave length content they should be of a warm / neutral colour temperature <4,200 kelvin. - Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal. • Light spill will be reduced via the use of low level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be directional to ensure that light is directed to the intended areas only. • External lighting will be positioned below the eaves, 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. • 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. All of the above will ensure that the replacement bat roosts within the developed site	and from the entrance. Bat boxes should also be positioned away from any artificial light sources.

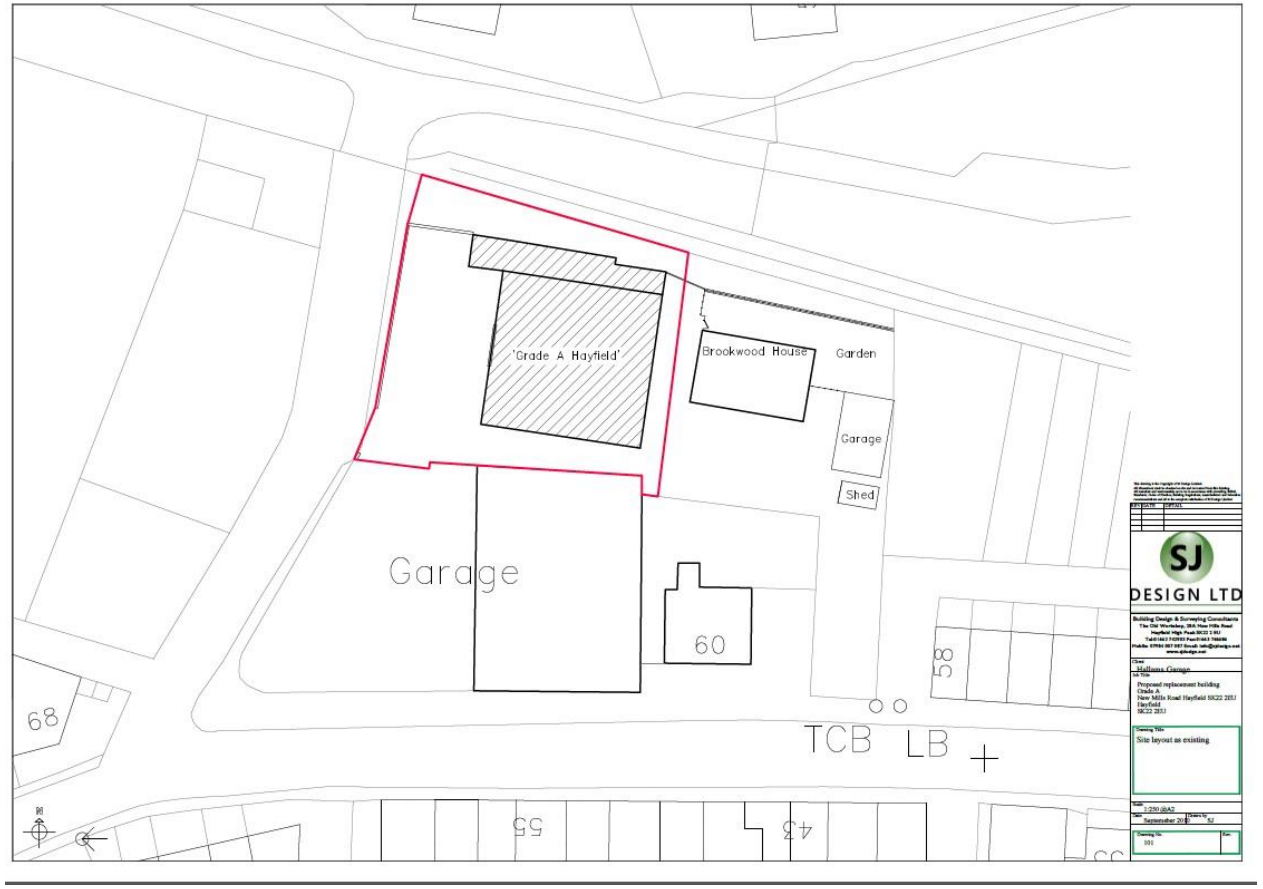
			will not be affected by any external lighting ensuring their long term use.	

5.0 Bibliography

- Collins, J. (ed.) (2012). 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 (2017) accessed on 09/06/2017.
- Magic database (2017) http://www.magic.gov.uk/MagicMap.aspx accessed on 09/06/2017.
- 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 2010 (as amended) through their inclusion on Schedule 2.

Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:

  a) to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young

  (ii) to hibernate or migrate

  b) to affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

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

Effect on development works:

A European Protected Species Mitigation (EPSM) Licence issued by the relevant statutory authority (e.g. 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)

NATIONAL PLANNING POLICY (ENGLAND)

National Planning Policy Framework

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 (Section 42 in Wales) 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.