



Stage 1 & Stage 2 Bat Survey Report

58 Chapel Hill

Client: Rachel Hussey

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Quality management

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1 Summary

Proposal Outline	Planning permission is currently being sought for a two-storey extension to the side of the building, following the demolition of the existing single-storey extension.
Site Description	The building is an end-terrace dwelling dating from the 1850s, constructed from rendered brick with a slate roof.
Surveys Undertaken	A Stage 1 bat survey comprising an internal inspection of all accessible loft spaces and external inspection of the building to look for bats or evidence of bats and assess the potential of the building to support roosting bats was undertaken on 5 March 2019. A desk study to look for features of interest within 2km of the building was also undertaken. This was followed by Stage 2 surveys comprising dusk emergence and dawn return to roost surveys undertaken in June and July 2019.
Results	During the Stage 1 survey no evidence of bats was recorded. However, multiple potential access points leading to suitable roosting locations are present under the slates on the main building and side extension affording the building medium potential. The desk study revealed that there are no designated sites within 2km for which bats are the primary reason for the designation. The nearest EPSL granted for bats related to a common pipistrelle and brown long-eared roost 1.2km to the south-east of the property. During the Stage 2 emergence/return to roost surveys no bats were seen to emerge from or return to the building.
Limitations	There were no limitations on the survey.
Evaluation	Surveys have confirmed the likely absence of roosting bats from this building.
Potential Impacts	No impacts of the proposed works are predicted on any roosts or upon any commuting and foraging habitat.
Recommendations	No further survey is required. Opportunities for biodiversity enhancement are included in the main body of the report.

2 Introduction

2.1 Site information

- 2.1.1 58 Chapel Hill is an end-terrace dwelling, dating to the 1850s. The building has an adjoining single-storey extension and is situated to the west of a small garden with a standalone garage, and to the north of a small driveway. The building is accessed from Chapel Hill (RG31 5DQ, grid reference SU 66302 73806). A site plan is shown in Figure 1.

2.2 Background and development proposals

- 2.2.1 Planning permission is currently being sought for an extension to the side of the building, with the development comprising the demolition of the existing single-storey extension and the construction of a new single and double-storey extension. The roof of the two-storey extension will adjoin the roof of the existing building. The garage onsite will remain unaffected by the proposals.

2.3 Purpose and scope

- 2.3.1 CA Ecology Ltd were contracted to conduct a Stage 1 Survey comprising an initial internal and external inspection of the building, to look for bats, or evidence of roosting bats and evaluate the potential of the building to support roosting bats. This was followed by dusk emergence and dawn return to roost surveys to determine the presence, or likely absence, of bat roosts from the building.

3 Methodology

3.1 Desk study

- 3.1.1 The MAGIC website (MAGIC, 2019) is reviewed for information on designated sites for which bats are the qualifying feature or key feature of interest within 2km radius of the building. Using a combination of OS map and online aerial imagery, an estimate of the proportion of suitable commuting and foraging habitat within 500m and 1km of the building is made. Measurements of the distance to nearest woodland and water are also recorded. Records of bats and their roosts within 2km are requested from the local bat group. This data is then taken together and used to inform the overall assessment.

3.2 Stage 1 survey – Internal and external inspection

- 3.2.1 The external inspection is undertaken from the ground and all external aspects of the building are inspected for bats or evidence of bats. During the internal inspection all available parts of the loft space are accessed using a ladder where necessary. Using close-focusing binoculars and a high-powered torch, a systematic search is undertaken to look for bats or evidence of bats. Evidence looked for includes: bat droppings on external surfaces such as walls, windows, window seals, soffit boards and tile surfaces, bat droppings within the loft space, scratch marks and grease marks around possible access and egress points, piles of insect remains and staining. The characteristic chittering noise is also listened for along with noise of movement of bats within crevices and echolocation calls within any loft voids. Where necessary an endoscope is used to check inaccessible crevices.
- 3.2.2 Where evidence of bats is present in the form of droppings a sample of the guano is taken and retained for later analysis, where necessary, using the following protocol:
- A sample of guano is selected that is dry and has had minimal exposure to sun and water
 - Wearing gloves, droppings are collected and placed into a clean Eppendorf tube
 - If samples are taken from different locations gloves are changed and a new sample tube is used
 - Samples are then placed individually in plastic bags labelled with the date and location of sample collection
 - Samples are then stored in a cool, dry place ready for later analysis where necessary

- 3.2.3 Where appropriate a tell-tale is then set out to assist in recording information about how bats are using the roost. A tell-tale comprises a white polythene sheet cut into approximately 2x3m sections. The sheets are placed under the roost to align with the roost location above; weights may be added to keep a sheet in place. In roosts where there is more than one species suspected to be present or several roost locations indicated by locations of piles of droppings more than one sheet may be laid out. The location of each tell-tale within loft space and the date it was set out is noted.
- 3.2.4 As evidence of bats, even at maternity roosts can be limited, inconspicuous or not present at the time of survey, the potential of the building to support roosting bats is also assessed. This includes looking for suitable access points and potential roost locations including, but not limited to: slipped or missing tiles, missing mortar, lifted lead flashing, gaps behind or into cladding or hanging tiles, gaps and cracks in walls or around windows and doors, gaps at eaves or behind barge and soffit boards, access into cavity wall. Internally, the suitability of the loft void for bats is assessed and the number and location of access points are noted.
- 3.2.5 The number of locations and aspect of potential access points is taken into consideration along with the number of potential roost locations, any history of use of the site by bats and results of the desk study, together with the surrounding habitat and connectivity to water and woodland, to give overall potential for the building to support roosting bats (see Table 1).

Table 1: Buildings are categorised as follows:

Building Potential	Description
Confirmed	Building with confirmed roost presence either in the form of droppings, bats present or other incontrovertible signs.
High	Building or structure has a numerous suitable access points and potential roost locations, with good connectivity to high quality foraging habitat.
Medium	Building has some features suitable for use by roosting bats. Surrounding habitat and connectivity may be of lower quality.
Low	Where the building or structure has features that could be used by roosting bats and the use of the building cannot be ruled out without further survey. Surrounding habitat may be low quality commuting and foraging habitat with poor connectivity to wider area. No evidence of bats found.
Negligible	No features suitable for use by roosting bats or features where the potential of use by roosting bats is so low as to be negligible.
N.B. The potential of the building will be affected by the surrounding habitat i.e. a feature on a building next to a floodlit car park may get negligible potential, whilst the same feature on a building next to a woodland with a stream may get low or even medium potential.	

3.3 Stage 2 surveys - Dusk emergence and dawn return to roost surveys

- 3.3.1 The dusk survey commences 15 minutes before dusk and the surveyor remains in position for 90 minutes after sunset. Positions are chosen to allow all potential access or egress points to be covered during the survey. Each surveyor is equipped with a frequency division or time expansion detector attached to a recording device. All bat calls are retained for later analysis where necessary. During the dusk survey, the surveyors maintain constant vigilance from a seated position on the selection of potential access points within their view. Low-powered or red-light torches are used for note taking to maintain the surveyors' night vision. Video cameras with night shot function and with additional IR lights are used throughout the surveys to aid in identification of roost locations.
- 3.3.2 At dawn, surveyors are in place 90 minutes before sunrise and remain until sunrise or 10 minutes after the last bat is recorded. At dawn, bats are tracked back to access points within view of the surveyor.
- 3.3.3 The species and activity of each bat are recorded, and a note of the real time and track time are made, along with a note of the flight path recorded on a map of the site. A bat pass is defined as a stream of echolocation calls recorded as the bat passes in and out of the detector's range. Whilst the focus of the survey is on any bats emerging from or returning to roost, a record of all bat passes is made to gauge the level of activity and species present on and around the site.

4 Survey findings

4.1 Desk study

- 4.1.1 There are no designated sites for which bats are a qualifying feature within 2km of the building. However, Blundells Copse Local Nature Reserve (LNR) and Louise Hill Copse LNR are located 0.8km and 1.6km to the east of the building, respectively, with the ancient woodland within the LNRs providing high quality foraging habitat for bats. Within 2km to the west of the building is a relatively well-connected patchwork of ancient woodland.
- 4.1.2 Within a 500m radius, 95% of the area is moderate quality foraging habitat in the form of sub-urban gardens and trees. The remaining 5% is low quality foraging habitat in the form of amenity grassland. The nearest woodland is 600m to the north-west of the building, and the nearest water source is a stream located 700m to the north-west of the building.
- 4.1.3 Twelve roosts have been recorded within a 2km radius of the site. The nearest, 1.1km from the site, is a common pipistrelle roost (*Pipistrellus pipistrellus*). Other roosts include those of common pipistrelles (*Pipistrellus pipistrellus*) and brown long-eared bats (*Plecotus auritus*). Records of roosts are shown in Table 2 below.
- 4.1.4 Three European Protected Species Licences (EPSL) have been granted for bats within 2km of the building. The nearest record is 1.2km to the south-east and affected the resting place of common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared (*Plecotus auritus*) bats. Other records involved common pipistrelle, soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared bats.
- 4.1.5 There are 100 non-roost bat records within a 2km radius, all records were acoustic records of bats in flight and included: serotines (*Eptesicus serotinus*), *Myotis* species, Leisler's bat (*Nyctalus leisleri*), noctules (*Nyctalus noctula*), common pipistrelles, soprano pipistrelles, and brown long-eared bats. All were bats in flight or injured bat records.

Table 2: Roost records within 2km of the site

Date	Species	Type	Grid Reference	Distance (km)
30 Sep 2013	<i>Pipistrellus pipistrellus</i>	Live bat identified in the hand - Natural England Volunteer Roost Visit. Roost.	SU670730	1.1
08 Aug 2013	<i>Plecotus</i> sp.	Droppings in non-breeding roost (car port roof space)	SU673744	1.2
08 Aug 2013	<i>Plecotus</i> sp.	Droppings (TVERC Source: EC)	SU6774	1.3

Date	Species	Type	Grid Reference	Distance (km)
08 Aug 2013	Pipistrellus pygmaeus	Emerging from roost - 5 Individuals (TVERC Source: EC)	SU6774	1.3
22 Aug 2013	Pipistrellus pygmaeus	Emerging from roost - 2 Individuals (TVERC Source: EC)	SU6774	1.3
2011	Pipistrellus pipistrellus	Reported to recorder - Small roost (TVERC Source: RBC)	SU6773	1.5
14 May 2014	Pipistrellus pygmaeus	Emerging from roost - Emerged from loose tile around chimney (TVERC Source: EC)	SU6775	1.7
14 May 2014	Pipistrellus pygmaeus	Emerging from roost - Emerged from roof (TVERC Source: EC)	SU6775	1.7
21 May 2014	Pipistrellus pipistrellus	Emerging from roost - Emerged from roof (TVERC Source: EC)	SU6775	1.7
21 May 2014	Pipistrellus pipistrellus	Emerging from roost - Emerged from around chimney (TVERC Source: EC)	SU6775	1.7
06 Jun 2011	Pipistrellus sp.	Maternity roost	SU666755	1.8
2012	Plecotus auritus	Reported to recorder - an occasional summer roost (TVERC Source: RBC)	SU6772	1.8

4.2 Stage 1 survey – Internal and external inspection

4.2.1 On the 5 March 2019 the building was visited by Rob Corcoran BSc MSc, a licenced bat surveyor (2018-34122-CLS-CLS) with over 6 years' experience of conducting bats surveys. All external parts of the building were assessed from ground level and all loft spaces were accessed and inspected. Table 3 below shows the results of the assessment. Photos of the building are given overleaf.

Table 3: Results of internal and external assessment

Feature	Description		
Type of property	Brick-built end-terrace dwelling dating to 1850s, with single-storey side extension. The southern half of the extension is constructed from brick, with the northern half of the extension constructed from wooden panels.		
Roof	Both the main building and the southern half of the side extension comprise a pitched slate roof with a gable end. The northern half of the extension comprises a felt flat roof.		
Potential bat access points	The roof of the main building has multiple access points under raised slates on both pitches, while the single storey extension has a small number of access points under raised slates, and a gap under the ridge tile at the eastern end of the extension. Photos of the building are given on photo sheet 2.		
Potential roost locations	Between slates and roofing felt, and under the ridge tiles of the extension.		
Loft description and accessibility	A single loft void with a simple A-frame roof construction is present. The roof is lined with traditional 1F felt which is well-fitted mostly in good condition, however one hole in the felt providing access into the loft is present. The loft is fully insulated with fibreglass insulation. The loft measured 4.2m (l) x 2.5m (h) x 3.8m (w).		
Evidence of bats	No evidence of bats was recorded internally or externally.		
Potential of building to support roosting bats			
Maternity Roost	Hibernation Roost	Transitional Roost	Night or Other Roost
Moderate	Low	High	High

4.3 Stage 2 surveys - Dusk emergence and dawn return to roost surveys

- 4.3.1 Dusk surveys were led by Claire Andrews and assisted by trained and experienced surveyors Rob Corcoran and Abby Johnson.
- 4.3.2 Two surveys were carried out: the first in June, and the second in July (see Appendix 1 for exact dates). No bats were recorded emerging from or returning to the building, full results are given in Appendix 1. Figure 2 shows surveyor locations during the surveys.
- 4.3.3 Bat activity was very low on both surveys with limited amounts of foraging activity recorded from nearby bats. Common and soprano pipistrelles were recorded foraging in the garden during every visit. Brown long-eared bats were recorded at most locations and noctule bats were recorded flying overhead. Surveyor locations are shown on Figure 2 and full results of the surveys along with weather conditions are given in Appendix 1.

4.4 Limitations

- 4.4.1 The survey was carried out with no limitations and in line with BCT Good Practice Guidelines 2016 and Natural England Bat Mitigation Guidelines (Mitchell-Jones, 2004).

5 Evaluation, potential impacts and recommendations

- 5.1.1 No bats were seen to emerge from or return to roost within the building, which confirms the likely absence of roosting bats from the part of the building to be directly affected.

5.2 Potential impacts

- 5.2.1 There are no predicted impacts of the proposed works on any roosts. The proposal will not cause any fragmentation or isolation as no trees or mature shrubs are to be felled. Indirect impacts such as disturbance will be negligible as the works are limited in scale. Therefore, there are no known legal or planning policy constraints with respect to bats at this site.
- 5.2.2 As a result of the proposals, a small number of potential roosting opportunities will be lost. However, with careful planning to restrict the amount of lighting and in the creation of new roosting opportunities, the site could retain its value for the common species of bats recorded foraging on site.

5.3 Recommendations

- 5.3.1 No further survey is required providing the proposals remain the same and planning permission is applied for before May 2021; after this date updated surveys may be necessary.
- 5.3.2 In line with the National Planning Policy Framework (NPPF) and local planning policy (see Appendix 2), measures to protect and enhance along with providing net gains in biodiversity on site should be incorporated into the scheme. Given that the building in its current form provides potential roosting opportunities for bats and these will most likely be lost, a number of new purpose-built roosting opportunities could be incorporated into the roof of the new building. Bat boxes and bat bricks can be purchased as off-the-shelf solutions; details of different options can be found here: <https://uk.pinterest.com/caecology/>
- 5.3.3 Alternatively, simple slots or access points could be created behind cladding allowing bats to use the space between the wall and the cladding. It is important that if access behind the cladding is provided that no breathable roofing membrane is used behind the cladding because it can fray and cause bats to become trapped.

6 References

- 6.1.1 Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.
- 6.1.2 Mitchell-Jones, A. J. (2004). *Bat mitigation guidelines*. English Nature.
- 6.1.3 Defra, J. a. (2012). UK Post-2010 Biodiversity Framework.
- 6.1.4 MAGIC. (accessed 05.03.19). MAGIC Map. Retrieved from (<http://magic.defra.gov.uk>)

7 Appendix 1 – Results

Weather conditions during the surveys

Visit	Date	Precipitation	Wind (Beaufort Scale)	Temp at sunset/sun rise	Temp at start/end	Cloud	Overall conditions
1	18.06.19	0	0	9.0	7.0	3/8	Suitable
2	09.07.19	0	0	21.4	15.4	8/8	Suitable

Survey Results

Date	Survey location	Bat seen to emerge/ return	Species	Notes
18.6.19 Dawn	1	None	1 Soprano pipistrelle (Ppy) 1 Brown long eared (Paur)	Very low level of activity, with a single soprano pipistrelle and single brown long-eared bat recorded commuting along the southern face of the building.
18.6.19 Dawn	3	None	1 noctule (Nn) pass 1 Ppy pass	Very low level of noctule and soprano pipistrelle activity recorded.
09.7.19 Dusk	1	None	1 Common pipistrelle (Pp) pass, 3 Ppy passes and 1 Paur pass	Very low level of commuting pipistrelle activity with single brown long-eared pass.
09.7.19 Dusk	2	None	2 Pp pass, 2 Ppy passes, 1 Paur pass and 1 Nn pass	Very low level of commuting pipistrelle activity with single passes from a brown long-eared and noctule.

8 Appendix 2 - Legislation and policy guidance

8.1 Legal protection

8.1.1 Bats and their roost receive full protection. Under the Conservation of Habitats and Species Regulations 2017 it is an offence (with few exceptions) to:

- Deliberately capture, injure or kill a bat
- Deliberately disturb - insofar as to impair its ability to survive, reproduce or rear young, hibernate, migrate, or significantly affect distribution and abundance
- Damage or destroy a breeding site or resting place - even if no bats present
- Possess or control, sell, exchange, offer for sale or exchange or to transport any live or dead specimen or anything derived from a bat

8.1.2 Further protection is provided in England under Section 9 of the Wildlife and Countryside Act (as amended), which adds the following offences:

- To intentionally or recklessly disturb bats whilst occupying a structure or place used for shelter or protection (which means disturbance remains an absolute offence)
- To intentionally or recklessly obstruct access to any structure or place used by bats for shelter or protection
- To sell, advertise for sale, offer for sale, possess, or transport any live or dead or any part of a bat

8.1.3 Additional protection is provided for soprano pipistrelle, noctule and brown long-eared bats, all of which are included on a list of species of principal importance for the conservation of biodiversity in England, created by the Secretary of State as a requirement under section 41 (S41) of the Natural Environment and Rural Communities Act 2006 (NERC Act).

8.1.4 Under section 40 of the NERC Act all public bodies have a duty to have regard to conservation and biodiversity when carrying out their functions, the S41 list is a guide for decision makers when implementing their duty. This duty extends to all public bodies the duty of Section 74 of the Countryside and Rights of Way Act 2000, which placed a duty on government ministers.

8.2 National planning policy

8.2.1 The National Planning Policy Framework (NPPF) and the supporting ODPM circular 06/2005 provides the basis for making planning decisions with respect to conserving and enhancing the natural environment. It specifically sets out how the planning system should minimise impacts on biodiversity and provide net gains, including establishing coherent ecological networks. In addition to confirming that the presence of a protected species is a material consideration in the making of planning decisions, it sets out a list of principles, which local planning authorities should follow when determining planning applications. These include:

- ‘if significant harm resulting from a development cannot be avoided...adequately mitigated, or as a last resort compensated for, then planning permission should be refused.’
- ‘...opportunities to incorporate biodiversity in and around developments should be encouraged.’
- The circular goes on to make it clear that Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System states it is essential that the presence or otherwise of protected species and the extent that they may be affected by the proposed development, is established before planning permission is granted.

8.3 Local planning policy

8.3.1 Reading Borough Council Core Strategy adopted in January 2008 (altered January 2015) sets out the planning policies which guide and control new development in the borough until 2023. Policy CS36 States that *“Development should retain, protect and incorporate features of biodiversity or geological interest (including protected species and their habitats) found within the application site into their schemes. On sites with recognised biodiversity or geological value, development will not be permitted where there would be a direct or indirect adverse impact on the site, unless it can be clearly demonstrated that: the need for development clearly outweighs the need to protect the value of the site; and appropriate compensation, impact minimisation, mitigation and compensation are provided”*

8.4 Biodiversity Action Plans and Biodiversity Opportunity Areas

- 8.4.1 The United Kingdom Biodiversity Action Plan (UK BAP) is a national strategy drawn up by UK Government to conserve threatened native species and habitats. The UK post-2010 Biodiversity Framework 2012 (Defra, 2012) means that the listing of species and habitats on the S41 list and its associated requirements under the NERC Act supersedes the UK BAP. However, the UK BAP action plans remain relevant to conservation aims and objectives. The UK BAP is supported by a series of Local Biodiversity Action Plans (LBAPs) which translate the targets identified in the UK BAP into targets for species and habitats appropriate to the local area. Each LBAP identifies those habitats and species considered most important in that area, commonly an LBAP will identify a number of habitats and species for which “action plans” have been prepared. In the South East region, the Biodiversity Opportunity Areas will be the focus for delivery of UK BAP habitats targets.
- 8.4.2 In 2009 The South East Biodiversity Forum has identified Biodiversity Opportunity Areas (BOAs), which represent a targeted landscape-scale approach to conserving biodiversity and the basis for an ecological network. BOAs identify where the greatest opportunities for habitat creation and restoration lie, enabling the efficient focusing of resources to where they will have the greatest positive conservation impact.

9 Appendix 3 - Figure list

Figure 1 – Location map

Figure 2 – Stage 1 and 2 Survey Results

Photo sheets 1 Photos of building internal and external

NB figures attached separately