
Visual Bat Survey Report



117 Whiteknights Road, Reading RG6 7BB

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Executive Summary

A visual bat survey was carried out to identify the possible presence or likely absence of bats and bat roosts at 117 Whiteknights Road, Reading, to support a planning application with Reading Borough Council.

117 Whiteknights Road is a detached brick-built two-storey family house in Reading, adjacent to the Reading University Whiteknights campus. It is set in a mature residential area with a mature rear garden largely laid to lawn.

The surrounding habitat was assessed as offering bat foraging habitat of a range of quality, from lower-quality dense residential areas to the higher quality woodland, grassland and open water habitat at adjacent University campus.

A detailed examination of the internals and externals of the house found evidence of bat use, with an identified roost located on the inside of the south east facing roof slope of the front facing gable projection.

In the absence of measures to avoid impacts the development is concluded to have the potential to affect bats through disturbance and temporary modification of and damage to the roost.

However, a range of measures have been recommended that would avoid any such impacts, through a combination of careful timing of works affecting the roof and the installation of a temporary barrier between the works area and the roost.

The house could be fully inspected and a robust assessment of the nature of bat use at the site carried out without the need for further dusk or dawn surveys. No further survey work is recommended.

It is concluded that if these measures are implemented then the development would not adversely affect bats and accords with relevant planning policy with respect to biodiversity.

1 Introduction

1.1 Objectives of the study

The purpose of this study was to provide information on the possible presence or likely absence of bats at 117 Whiteknights Road, Reading, to support a planning application with Reading Borough Council.

1.2 Site description

117 Whiteknights Road is a detached two-storey family home in Reading set in a mature residential area adjacent to the Reading University Whiteknights campus, with a mature rear garden laid largely to lawn. It is of traditional brick construction, with painted render at first floor level.

The house is oriented with the main roof ridge running approximately north-west to south-east, with the house facing south-west onto Whiteknights Road. It has gable ends to either side of the house, with a further front gable to the south-west. There is a small catslide roof projecting to the front of the house next to the front gable and forming the front porch.

The house has a timber framed, pitched roof of plain clay tiles and half-round ridge tiles, with two brick chimneys with lead flashing. Windows are of modern uPVC and there are painted timber soffit boxes. There is a small single storey brick-built garage with a pitched roof just inside the rear garden and a modern timber-clad home office / garden room to the rear of the back garden. There is a small single story rear conservatory and a single storey lean-to type extension to the rear.

Internally, the loft is of traditional timber joist and rafter construction. There is a layer of mineral wool insulation. The roof tiles are unlined.

1.3 Proposed works

It is proposed to extend the existing house through the addition of a new ground and first-floor extension to the rear elevation following demolition of the conservatory and single storey lean-to extension. The proposals will also introduce two small Velux-type

rooflights into the loft to provide sealed light wells down to the first floor bedroom. The loft itself is not being converted and the new light wells will not introduce light into the loft itself.

Figure 1 shows existing and proposed rear elevations.



Figure 1 – Existing and Proposed rear elevations

1.4 Limitations

All external features were fully visible during the survey work. Internally, all areas of the loft were accessible. Much of the loft had moderate levels of dust to the insulation and structural timber surfaces, although this was evenly distributed and undisturbed. While this may have masked some evidence of bats if that evidence was several years old, it is not seen as a significant constraint to identifying bat droppings deposited in recent years.

Therefore, there were no significant limitations to this visual survey.

2 Methodology

2.1 Desk study

A desk-based assessment was carried out on 28th February 2017. This used a variety of information, as follows:

- Online ecological data (MAGIC¹) was used to gain information on designated sites and priority habitats within 2km of the Site.
- Aerial photos and Ordnance Survey mapping (again via MAGIC and Google.co.uk) was used to gain an understanding of the landscape context of the site.
- Natural England Bat Records for Berkshire and Oxfordshire held by Thames Valley Environmental Records Centre (TVERC) accessible under Creative Commons Attribution 4.0 licence on the National Biodiversity Network Gateway².

2.2 Field survey

A visual bat survey was carried out on 3rd March 2017 by Adam Egglesfield of AE Ecology, who holds a current licence to survey bat roosts (Bat Survey Licence Number 2015-12330-CLS-CLS). Survey methodology used during the work is guided by and consistent with that set out in the Bat Conservation Trust's '*Bat Surveys for Professional Ecologists: Good Practice Guidelines*' 3rd edition, (Collins, J. (ed) 2016). A brief description of the survey methods used is provided below

2.2.1 Building roosts

Built structures at the site were subject to a detailed internal and external search. The aims of this were to identify evidence of bat activity and / or identify the presence of any features that could potentially support roosting bats, or features through which bats could gain access to possible roost locations. All external areas of relevant

¹ Multi-Agency Geographic Information for the Countryside - <http://magic.defra.gov.uk/>

² <https://data.nbn.org.uk/Datasets/GA000739>

buildings were inspected to identify potential bat access points and roosting features. Such features typically include missing, slipped, broken or bowed roof tiles, gaps around fascias and soffits, gaps in brickwork (such as missing mortar or expansion gaps), lifted chimney / roof / window flashing, and gaps around window and door casements.

The external inspection also aimed to identify any actual direct evidence of bat use such as droppings adhering to walls, floors or window sills below gaps, or staining around possible access gaps. Features were inspected using binoculars and, where necessary and safely possible, a ladder. A high-powered torch was used to illuminate potential roost and roost access features where necessary.

Where present and safely accessible, any internal voids and similar spaces were inspected for evidence of bat presence such as live bats, corpses, droppings, feeding remains and staining.

Each surveyed structure was subsequently assessed for its suitability to support roosting bats, from negligible to high, based upon the presence of direct evidence or the presence and characteristics of any identified suitable access and roosting features, in line with the survey guidelines.

2.2.2 Foraging and commuting habitat

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and / or commuting bats. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland, and open water and watercourses, which are highly attractive to bats as both a foraging resource and as commuting routes. The presence of such habitats, particularly in a mosaic with other suitable habitat, typically increases the potential for structures to be exploited by bats where suitable roost and access opportunities are present. The presence of unlit semi-natural vegetation and habitat linkages between the site and the surrounding landscape were also considered.

3 Survey Results

3.1 Desk study

Figure 2 below shows the location of the site and its surrounding relevant ecological interest features produced from MAGIC:

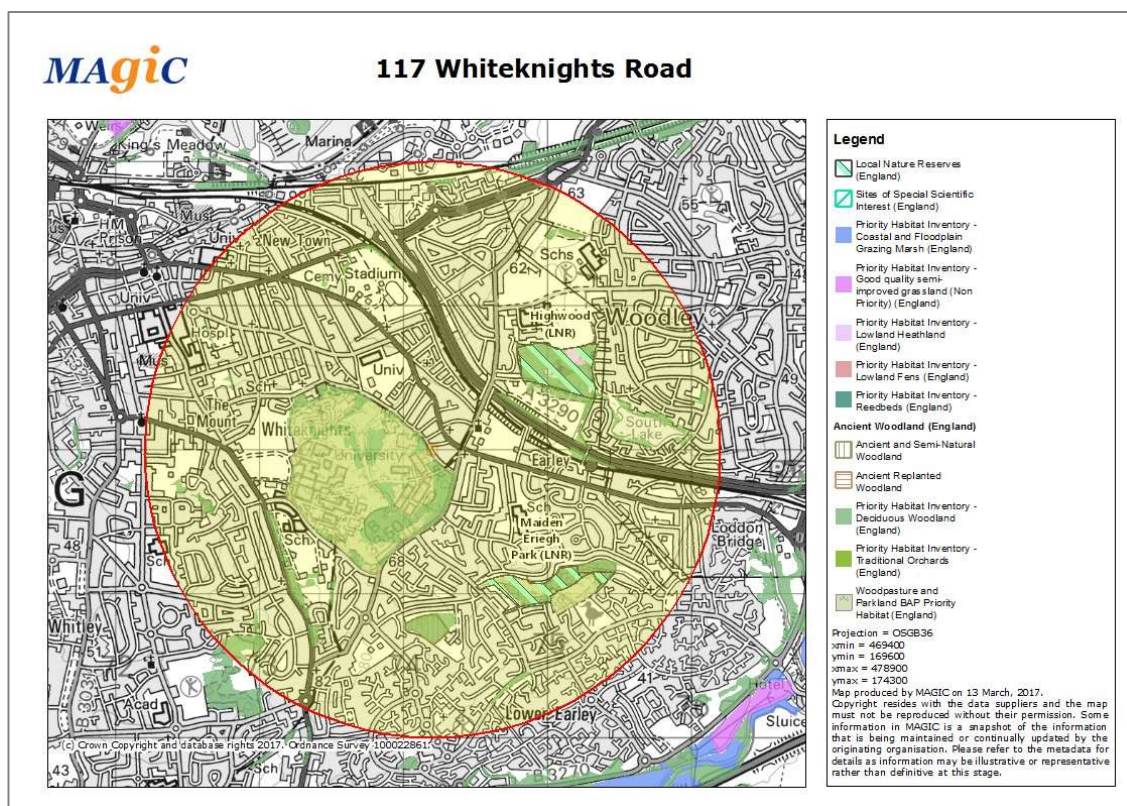


Figure 2 – 2km search area around site showing key habitats

3.1.1 Designated sites and notable habitats

The site lies adjacent to the large expanse of diverse habitat at the Reading University Whiteknights campus, which includes a large lake, areas of woodland and areas of more open grassland / wood pasture / parkland habitats.

Further afield, the site is approximately 800m from Highwood Local Nature Reserve (LNR) and 900m from Maiden Erlegh Park LNR. Highwood supports rich woodland habitats and areas of heathland as well as a range of exotic trees in an arboretum

setting³, while Maiden Erlegh Park supports a large lake and a range of important woodland habitats, including an element of ancient woodland (i.e. land that has been continuously wooded for several centuries)⁴.

There are no other legally protected nature conservation sites such as Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) within 2km of the site.

3.1.2 Protected species

Very few bat records were returned during the desk study. Only two records were returned from the publicly-available dataset from TVERC, both from the 1990s. However, one of these, a record of a *Pipistrellus* sp. bat (dated 1993) was associated with Bridges Hall, the university hall of residence that lies across Whiteknights Road from the site.

MAGIC holds records of recent licences granted for works involving bats. Only a small number of licences are shown to have been granted in the search area. Most are associated with small non-breeding roosts for common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared *Plecotus auritus* bats for various developments at the Reading University Whiteknights campus, including several for both pipistrelle species at a building that is also considered likely to be Bridges Hall, and these are more recent records for licences covering the period 2012-2016.

3.1.3 Mapping and habitat assessment

Examination of aerial photos (Figure 3, below, red dot marks the site) clearly shows the close proximity of the university campus to the site. Figure 3 also shows the extensive residential development in much of the surrounding area with the notable pockets of green space set within the more urban matrix.

³ <http://www.wokingham.gov.uk/countryside-parks-and-conservation/country-parks/highwood-nature-reserve/>

⁴ <http://www.maidenerleghlnr.org.uk/>



Figure 3 – Surrounding landscape (from google.co.uk)

3.2 Field survey

3.2.1 Buildings – externals

The tiled roof was in good general condition with no obvious damage to tiles or slipped roof tiles. However, the clay tiles are of a type that typically results in the presence of small gaps through the natural manufacturing process and as the tiles settle on the timber roof frame once the house has been constructed.

As a result, there were several areas of the roof faces where gaps were noted that appeared to offer potential points for bats to gain access (see Photos 1 and 2). The rear of the house presented fewer access opportunities, possibly as this is of simpler dimensions with less complexity, resulting in less opportunity for gaps between tiles to be present. The ridge tiles were well-mortared and the soffits were in good condition and tight to the external walls with no gaps noted (see Photo 3). The tiles to the small rear lean-to extension were similarly in good condition (Photo 4).



Photo 1 – Tiles to front of house



Photo 2 – Rear of house



Photo 3 – Soffits on good condition



Photo 4 – Rear lean-to extension



Photo 5 – Rear garage (unaffected by development)



Photo 6 – Rear garden

3.2.2 Buildings – internals

Internally, the loft is readily accessible. A detailed examination of all surfaces, including internal timbers, floors, walls and stored items was possible.

There are two ridge lines to the loft – one running along the width of the house north west to south east, and one running forwards to the front gable. There is a small amount domestic storage to the centre of the loft near the access hatch, but most of the loft was clear. There was generally a moderate level of dust and wind-blown debris in the loft due to the unlined nature of the roof tiles (Photos 7 and 8). Much of the loft had moderate cobwebs to it, and extensive cobwebs were present along much of the main ridge, at the two side gable apexes, and around chimney breasts (Photos 9 and 10).



Photo 7 – General conditions of loft



Photo 8 – Roof tiles unlined



Photo 9 – Cobwebs to ridge (looking south east)



Photo 10 – north west gable apex

Numerous small gaps were noted to be present, several of which are sufficient to allow bats to access the loft.

Two scattered bat droppings (considered to be from a pipistrelle sp. bat) were found in the main loft area between the central chimney and the south east gable. These appeared to be rather old as they had a light covering of dust, were extremely desiccated and crumbled quickly to dust during examination.

A small collection of approximately 10 pipistrelle-type droppings was found around halfway along the front gable projection, on the south-east side. A small number of these droppings were found close together adhering to the underside of the unlined roof tiles, battens and rafters (Photos 11 and 12), with the rest found in a loose group on the loft insulation below these. These droppings appeared somewhat fresher, retaining their integrity and with no apparent dust covering.

The loft in general was noted to be draughty due to the lack of a lining membrane.

Figure 4, below, shows the location of these.



Photo 11 – Bat dropping to tile batten



Photo 12 – Bat droppings to underside of tiles

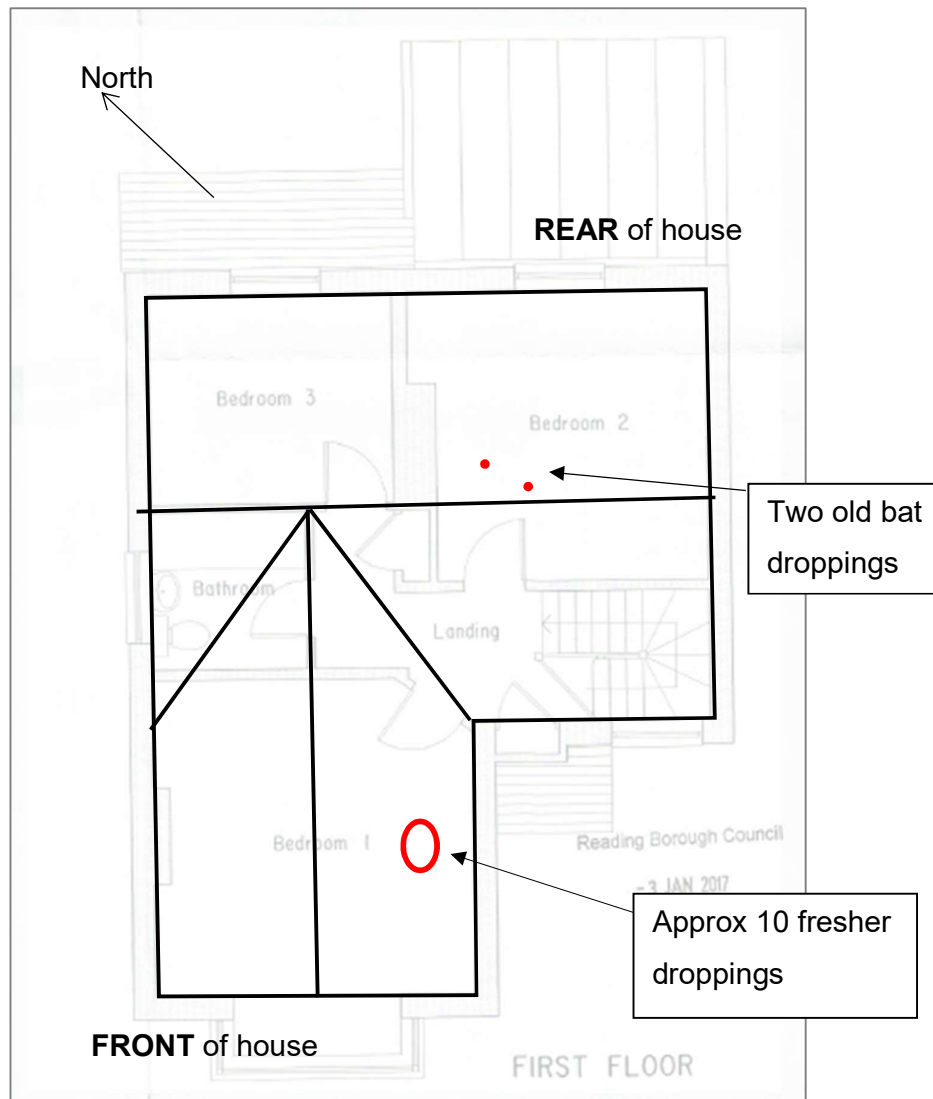


Figure 4 – Outline of loft area (laid over first floor plan) showing the location of bat droppings

4 Discussion

4.1 Interpretation

The habitat in the immediate area offers a range of habitats of differing value to bats. Much of the surrounding landscape is residential / urban in nature, of lower value as bat foraging habitat. However, the nearby woodland, grassland and open water habitats in the adjacent University campus does offer a substantial area of higher quality bat foraging habitat. Therefore, this may mean that houses in the immediate vicinity of the campus would have a higher likelihood of supporting bats if there were suitable roost opportunities presented (and this is supported by existing bat records at the nearby Bridges Hall). The large number of houses in the residential area surrounding the campus may mean that bat species that are more adapted to living in urban residential environments, such as the two pipistrelle species (common and soprano pipistrelle), may be more locally common.

In view of the above, it is reasonable to conclude that any potential gaps / roost features would have a higher likelihood of being exploited by bats.

At 117 Whiteknights Road, it appears conclusive that bats have used the site in the past and thus the house presents High roost suitability. The access opportunities through the unlined tiles mean that the loft is accessible and presents a range of potential roost locations associated with the timbers and tiles. However, conversely, the lack of a roof membrane means that the house lacks roosting opportunities presented by the numerous small crevices formed between tiles and felt where felt is present.

The internals and externals of the house were fully accessible and could be closely inspected. The lack of a roof lining means that there are no hidden crevices across the roof faces that could support bats and that were not able to be inspected.

The rear part of the house, where the proposed extension is to tie in to the existing, and the area where the two proposed roof lights are to be inserted (to form light wells into the first floor bedroom below) is of simple construction and could be fully inspected.

The identified roost location is on the south east facing roof slope of the front gable of the house – thus giving both good access towards the adjacent higher-quality habitat at the University, and will receive the most warmth from the sun, thus making this roof face the most favorable roost location at the house.

Based on the location and quantity of droppings, it is considered that at this point there is an occasionally-used roost for a single pipistrelle bat, which is gaining access through a gap in the tiles and roosting along the underside of one of the tile battens where this meets the tile.

No evidence of bat use was found along the rear roof face of the house where the proposed extension is to be constructed. There is no evidence to suggest a maternity roost is present.

The two scattered droppings towards the centre of the loft are considered to be several years old, and not indicative of a current roost.

The loft, being unlined, is draughty and subject to fluctuating temperatures. As such, it is considered that it does not present a suitable environment to be used as a hibernation roost.

4.2 Impact assessment

Bats are legally protected under both domestic and international law (the Wildlife and Countryside Act 1981 (as amended)⁵ and the Conservation of Habitats and Species Regulations 2010 (as amended)⁶ respectively). All native bat species are European Protected Species (EPS). This legislation makes it an offence to kill, injure or disturb bats, or to destroy or damage their roosts, even when the bats are not present.

The proposed extension works are to the rear of the house, away from the roost location. The majority of the loft area is not used by the bat or bats using this roost

⁵ <http://www.legislation.gov.uk/ukpga/1981/69>

⁶ <http://www.legislation.gov.uk/uksi/2010/490/contents/made>

and thus the extension works are not considered to be likely to destroy or permanently damage the roost.

However, in the absence of any measures to avoid them, there is a reasonable likelihood that the building works would result in disturbance and temporary damage to the roost, through temporary changes in environmental conditions (such as light and noise) during the works.

4.3 Recommendations

In order to avoid impacts to the bat roost at 117 Whiteknights Road, the following measures are recommended:

- Any works to the existing roof to tie in the new extension, construct the sealed light wells, and to work on any domestic services within the loft (e.g. plumbing or electrical wiring) will take place between October and March (inclusive). It is unlikely that bats would be using the roost at this time and thus all disturbance would be avoided.
- Accidental damage / modification of the roost will be avoided through the erection of a temporary partition of rough plywood across the existing rafters that are present between the two areas of the loft as shown in Figure 5, below. This barrier will be removed upon completion of the works.
- At present, it is not known if traditional or modern roof membrane will be used in the new extension. If modern breathable membrane is used, contractors will ensure that there are no gaps between the existing and new roof voids to ensure that if bats to use the existing loft in the future, they cannot come into contact with the modern membrane. Modern breather membranes entangle bats, while the action of the bats' claws as they try and free themselves causes the membrane to degrade (Waring et al, 2013)⁷.

⁷ <http://www.batsandbrms.co.uk/images.php>

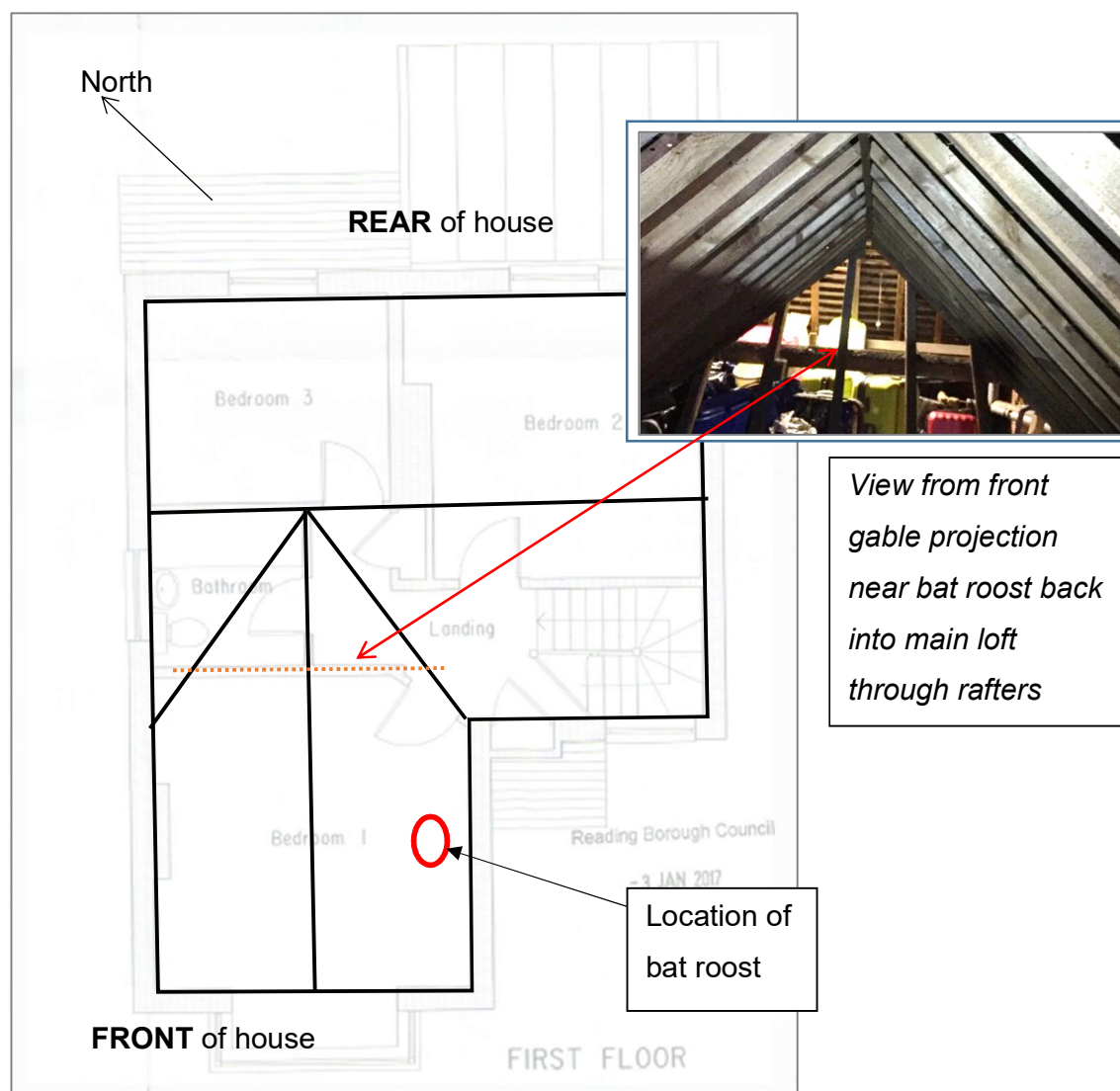


Figure 5 – Plan of loft showing proposed location of temporary plywood barrier

4.4 Further survey work

This assessment is based on a visual survey only. Ordinarily, where a building affected by development proposals is judged to present roost suitability (and if direct evidence of bat use is found), the visual assessment should be supported by further survey work on several occasions at dusk and dawn. This work would either conclude absence of bats or if present, would provide further information to properly confirm and characterise the status of any roosts present to inform further impact assessment and aid the design of appropriate and proportionate measures to avoid, mitigate and compensate for those impacts.

However, in the case of 117 Whiteknights Road, the house could be fully inspected and a robust assessment of the nature of bat use at the site carried out without the need for further surveys.

As the existing roost will be retained, and disturbance and temporary modification impacts to this can be completely avoided through careful timing of the work and simple protection measures, the development can be demonstrated to be unlikely to affect bats.

Therefore, in this particular instance, it is concluded that further survey work is not necessary.

4.5 Planning Policy

Policy CS36 'Biodiversity and Geology' of the Reading Borough Council Adopted Core Strategy (revised 2015) 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."

The supporting text to the policy states that

"Protected species identified by the Species Action Plan of the Reading Biodiversity Action Plan (BAP) and their habitats must also be protected from any direct or indirect harm resulting from development."

The assessment in this report and measures set out to avoid impacts to bats are sufficient to demonstrate that this development will retain and protect features of biodiversity interest, and these features will be protected from both direct and indirect harm. It is therefore concluded that the development accords with planning policy.

5 Conclusions

A detailed examination of the internals and externals of 117 Whiteknights Road evidence of bat use, with an identified roost located on the inside of the south east facing roof slope of the front facing gable projection.

The surrounding habitat offers bat foraging habitat of a range of quality, from lower-quality dense residential areas to the higher quality woodland, grassland and open water habitat at adjacent University campus.

In the absence of measures to avoid impacts the development would have the potential to affect bats through disturbance and temporary modification of and damage to the roost.

However, a range of measures have been recommended that would avoid any such impacts, through a combination of careful timing of works affecting the roof and the installation of a temporary barrier between the works area and the roost.

No further survey work is recommended.

It is concluded that if these measures are implemented then the development would not adversely affect bats and accords with relevant planning policy with respect to biodiversity.

6 References

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