

Bat Activity Survey Report

16 Tower Close

Emmer Green
Reading
Berkshire
RG4 8UU



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Signature:



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Executive Summary

Eaves Ecology was commissioned by Mr Tim Jones to conduct bat activity surveys, at 16 Tower Close, Emmer Green, Reading, Berkshire, RG4 8UU. The site is located a grid reference SU 72376 77484. The three night time surveys were conducted to support a planning application to Reading Brough Council.

The bat activity surveys and report have been conducted and prepared by a qualified licensed bat ecologist Dr Stacey Dawn Waring. This report gives details of the three bat activity surveys conducted on 31st July, 19th August and 22nd September 2022.

Initial observations consider the surrounding area to have **moderate** potential to support bats. The combination of local habitats, connectivity to the wider landscape and reduced urban disturbance; increase the area's ability to support bats and their insect prey. However, the limited number of waterbodies may act as a limiting factor to population size.

The preliminary bat roost assessment was conducted by Spires Ecology on the 25th May 2022 and the findings are detailed in the associated report (dated 2nd June 2022). No evidence of bats was found, during the internal or external inspections. However, there were several gaps, which could be utilised by bats to access the hanging tiles, soffits, roof void and batten space. Initially, 16 Tower Close was considered to have a **low** potential to support roosting bats and a single activity survey was recommended. However, the presence of roosting bats was confirmed during the initial survey and so a total of three activity surveys were conducted.

Results from the three bat activity surveys (2x dusk emergence and 1x dawn re-entry), showed constant, low numbers of foraging bats. At least five species of bat were recorded flying around the site, including: Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Nathusius Pipistrelle (*Pipistrellus nathusii*), Noctule (*Nyctalus noctula*) and Brown Long-Eared bats (*Plecotus auritus*).

A maximum of three Soprano Pipistrelle's and three Common Pipistrelle's were recorded utilising three different points around the building for roosting (Figures 6 - 8). Consequently, 16 Tower Close is confirmed to be a current and active day roost for low numbers of two species of bats.

Taking this information into account it is concluded that the planned works, without mitigation, will result in the disturbance/destruction of a confirmed bat roost, and could negatively impact local populations. **Therefore, an EPS Licence is required for works to proceed legally and to ensure the continued safety of the local bat population.**

1 Introduction

Eaves Ecology was commissioned by Mr Tim Jones to carry out three bat activity surveys, at 16 Tower Close, Emmer Green, Reading, Berkshire, RG4 8UU.

The bat activity surveys and report have been conducted and prepared by a qualified Natural England licensed bat ecologist Dr Stacey Dawn Waring. This report gives details of the three bat activity surveys (2x dusk emergence and 1x dawn re-entry) conducted on 31st July, 19th August and 22nd September 2022.

The preliminary bat roost assessment was conducted by Spires Ecology on the 25th May 2022 and the findings are detailed in the associated report.

1.1 Objectives of the Surveys and Reports

The Preliminary Bat Roost Assessment and Activity Surveys are designed to provide information to:

- Identify the presence/likely absence of bats within the house;
- Estimate the size and status of any existing bat roost within the buildings;
- Determine the potential impacts on any bat roost from the proposed development;
- Establish whether mitigation or an EPS licence is required.

The surveys and report writing were carried out in accordance with Bat Surveys: Good Practice Guidelines (Bat Conservation Trust, 2016).

1.2 Surveyor Information

Dr Stacey Dawn Waring, has held a Class II Bat Licence (No. 2015-6768-CLS-CLS) for 11 years. She spent 10 years' conducting research for the University of Reading and Bat Conservation Trust (4 years) with regards to bats and modern roofing construction methods. Prior to establishing Eaves Ecology, Stacey spent 15 years working with numerous ecological consultancies, conducting protected species surveys. Stacey's expertise is in the area of bats and building design.

In addition, one other surveyor was present on all three bat activity surveys:

- **Anthony Wells** – Is a skilled ecologist with ten years' experience conducting ecological surveys; In particular bat activity surveys. He has a good knowledge of a wide variety of bat species, bat calls and detectors. Anthony has attended several accredited courses on conducting bat surveys and is currently working towards his Class II Bat Licence

2 Legislation

All bats in the UK are protected under law and therefore thought must be given when demolition and/or planning is to be considered. The Wildlife and Countryside Act (WCA) 1981 (as amended), forms the key legislation protecting habitats and species in the UK. All UK bat species are fully protected under the 1981 Act through inclusion on Schedule 5. All bats are also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017, which transcribes the EC Habitats Directive into UK law. In combination, this legislation makes it an offence to:

- Deliberately or recklessly take, injure or kill a bat;
- Deliberately or recklessly damage or destroy a place or structure used by bats for shelter or protection;
- Deliberately or recklessly obstruct access to a bat roost; or
- Deliberately or recklessly disturb bats while occupying a roost.

Bat roosts are protected under these laws whether the animals are present at the time of survey or not. A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey. The above is a summary of the relevant legislation and the original Acts and Schedules should be referred to for the precise wording.

Barbastelle Bats *Barbastella barbastellus*, Bechstein's Bat *Myotis bechsteinii*, Noctule *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Greater Horseshoe Bat *Rhinolophus ferrumequinum* and Lesser Horseshoe Bat *Rhinolophus hipposideros* are also listed as being species of principle importance to the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

Actions that will constitute an offence in law may be mitigated against if sufficient precautions are followed and/or a mitigation license is sought from the Statutory Nature Conservation Organisation (SNCO; Natural England). Therefore, a precautionary approach has been adopted to ascertain the use, if any, bats are making of these buildings in relation to a planning application submitted to the Local Planning Authority (LPA) to better inform any subsequent decisions.

3 Background

3.1 Site Location

16 Tower Close is located in Emmer Green a suburban area, approximately 4km to the north-west of Reading town centre (Figure 1). The site is located a grid reference SU 72376 77484.



Figure 1 – Showing site location of 16 Tower Close (courtesy of Google Earth)

The site is directly surrounded by residential dwellings, gardens, roads, wooded areas, amenity green spaces, agricultural land and pastures (Figure 1). The local landscape consists of an expansive urban area, with high levels of habitat fragmentation to the south of the site; although there are areas of woodland and farmland within close proximity of the property in all other directions.

The site is in close proximity to a number of busy commuter roads, including; B481 Peppard Road (230m west), Kiln Road (200m south-east), Caversham Park Road (600m south) and Kidmore End Lane (700m south-west).

3.2 Site Description

The site consists of a modern (1950's), detached, two storey house of cavity wall, brick construction (Figures 2 to 4) with a pitched (gabled) roof, consisting of timber rafters resting on the walls and a machine-made, interlocking, concrete tile covering. The upper sections of the front (western) and rear (eastern) elevations are decorated with machine-made, concrete hanging tiles (Figures 2 and 3).

There is a single storey, brick walled, flat-roof extension to the front (western elevation) that wraps around the building to the side (northern elevation) (Figures 2 and 4). The property is in good condition and is currently occupied.



Figure 2 – Front (western) elevation of 16 Tower Close with extension to front and side



Figure 3 – Rear (eastern) elevation of 16 Tower Close hanging tiles on upper section



Figure 4 – Front (western) elevation of 16 Tower Close showing current wraparound single storey extension

3.2.1 Development Proposals

The works planned to be conducted at 16 Tower Close, currently include a two-storey front extension with a single storey front, rear and side wraparound extension. The final design plans are to be submitted to Reading Brough Council with a full planning application.

4 Methods

4.1 Desktop Survey

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and EPS licences granted in relation to the survey site.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest, including; connectivity to woodland, pasture, parks, farmland and waterbodies in the local and wider landscape around the site. The connectivity of the site to these features, buildings, and other semi-natural habitats such as grassland and heathland are also relevant to bats and their insect prey.

4.2 Daytime Assessment

A detailed preliminary bat roost assessment was undertaken by Spires Ecology on the 25th May 2022. A systematic inspection of the building was conducted using the methodology described in Section 3.2 of the previously supplied report.

An initial visit was also conducted by Eaves ecology during daylight hours on the 12th July 2022, to determine surveyor positions and confirm the potential bat features, described in the report produced by Spires Ecology.

Prior to the commencement of each of the three Activity Surveys a brief external inspection of all accessible external areas, for droppings and evidence of bats, was conducted by Dr Stacey Waring. Any evidence seen during these checks was recorded and is noted in Section 5.3.3. However, it should be noted that only ground floor areas could be searched and it is not always possible to identify bat presence through external inspections; as poor weather conditions may have washed away droppings deposited on exposed surfaces.

4.3 Night Activity Surveys

The three bat activity surveys (2x dusk emergence and 1x dawn re-entry) at 16 Tower Close were conducted on the 31st July, 19th August and 22nd September 2022. Times of year when active bats are most likely to be found and maternity/satellite roosts should be present. Surveys were conducted on dates where the forecast weather conditions, fell within the parameters recommended by the Bat Surveys: Good Practice Guidelines (Collins 2016). Consequently, any bats present are very likely to be active.

Emergence surveys began 15 minutes before sunset and finished one and a half hours after sunset, however, if there were any bats showing interest in the building within 15 minutes of the survey ending, it was extended a further 30 minutes.

Dawn re-entry surveys began two hours before sunrise and finished 15 minutes after sunrise. If bats were still active after sunrise, the survey was extended for a further 15-30 minutes.

During each of the bat activity surveys the two surveyors were positioned at the locations shown in Figure 5. Each surveyor was equipped with Echo Meter Touch 2 Pro (full spectrum) bat detectors. Echolocation recordings were analysed using Kaleidoscope Pro ultrasound (call analysis software), to facilitate species identification. Surveyors also had radios, to communicate the flight paths of bats and help prevent false emergences/re-entry's being recorded.

During the three activity surveys, two professional night vision (IR) video-cameras (Sony AX100), each illuminated with two infra-red lamps were also used. The locations of which can also be seen in Figure 5. One IR video-camera was used to record any activity on the northern elevation, due to the narrow field of view and lack of features in this area. The second camera was used in addition to Surveyor B, to complement and confirm their observations. The camera was focused on areas of the hanging tiles and chimney (Figure 5) that had more complex features and/or would be difficult to see clearly, as the survey progressed. The videos were then analysed to help confirm visual bat emergences/re-entries, recorded by the surveyors.

5 Results

5.1 Desktop Survey

5.1.1 European Protected Species Licences

Data from the DEFRA MAGIC Map (www.magic.defra.gov.uk) identified at least **nine** applications for a Protected Species Licence for bats, within a 2km radius of the site.

Species and details recorded in these licence applications can be seen below in Table 1.

Table 1 – List of European Protected Species Licences for bats, granted within 2km of 16 Tower Close

Distance from Site	Direction from Site	Dates Valid	Bat Species Listed
0.08km	South	2017 - 2018	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)
0.40km	South	2012 to 2014	Brown Long-Eared (<i>Plecotus Auritus</i>) Natterer's bat (<i>Myotis Nattereri</i>) Daubenton's bat (<i>Myotis daubentonii</i>)
0.97km	South-West	2013 to 2013	Brown Long-Eared (<i>Plecotus Auritus</i>)
1.42km	North-West	2012 to 2012	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) Brown Long-Eared (<i>Plecotus Auritus</i>)
1.45km	South-West	2018 - 2018	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)
1.49km	North-East	2017 - 2022	Brown Long-Eared (<i>Plecotus Auritus</i>)
1.92km	South-East	2019 - 2021	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) Brown Long-Eared (<i>Plecotus Auritus</i>)
1.98km	South	2018 - 2023	Serotine (<i>Eptesicus serotinus</i>)
2.00km	South-East	2018 - 2018	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)

5.1.2 Designated Sites

The property is located within the Impact Risk Zone of **one** SSSI site and 2km of land-based statutory designations, such as Local Nature Reserves (LNR). A full list of these can be found below in Table 2.

Table 2 – Location of Land-Based Statutory Designations in the local vicinity of 16 Tower Close

Statutory Designation	Name of Area	Distance from Site	Direction from Site
AONB	The Chilterns	1.15km 1.50km	North West
SSSI	Harspden Wood	4.45km	North-East
LNR	Clayfield Copse	0.20km	East

5.1.3 Surrounding Habitats

There are numerous areas of green space within close vicinity of the site, including numerous large gardens attached to neighbouring properties, agricultural land (within 165m east) and pasture and paddocks (within 140m north). There are also a number of amenity green spaces, including; Bryant's Farm (275m north-east), Clayfield Copse recreational Ground (460m south), Caversham Park Tennis Club (780m south), Reading Abbey Rugby Club (890m north-west), Littlestead Green (1km south-east),

Emmer Green Playing Fields (990m south-west), Emmer green Allotments (1.15km south-west), Highdown Sports Centre (1.40km south-west) and Dunsden Green (1.55km east).

In terms of Priority Habitats, there are a number both locally and in the wider local landscape. These include; Highfield House (1.15km north-east), Beehive Plantation (1.15km north-west), Comp Farm (1.3km north-east), Milestone Wood (1.45km south-east), Banda Lodge (1.6km north-east), Cucumber Plantation (1.63km north-west), Beech Wood (1.65km south-west), Kings Common (1.66km north-east), The Common (1.76km north-east) and Binfield Heath (1.85km north-east), which all contain areas of Deciduous Woodland and Broadleaved Woodland (both Priority Habitats).

A number of local habitats contain both Deciduous Woodland (Priority Habitat) and Ancient and Semi-Natural Woodland, including; Clayfield Copse (208m east), Blackhouse Wood (445m south-east), Chambers Copse (660m west), Cucumber Wood (890m west), Comp Wood (1.05km north-east), Lady's Shaw (1.55km north), Long Covert (1.61km north-east), Round Wood (1.72km east), Morgan's Wood (1.74km north), Dyson's Wood (1.85km north-west) and Bird Wood (1.86km north-west).

There are also two areas containing Deciduous Woodland and Wood Pasture and Parkland (BAP Priority Habitats), which can be found at; Fairways Family Golf Course (765m south-west), and Caversham Park (925m south).

A limited number of waterbodies can be found within 2km of the site, including; Northbrook Pond (900m south-east), Emmer Green Pond (1.10km south-west), a pond at Highfield House (1.3km north-east), pond at Comp Farm (1.32km north-east), Caversham Park Lake (1.35km south), Dunsden Green Pond (1.47km east) and Binfield Heath Pond (1.86km north-east). There are also a number of drainage ditches, balancing ponds and streams running along roads and agricultural fields, within the 2km radius.

All of the above-mentioned habitat types combined; increase the areas ability to support bats and their insect prey.

5.1.4 Habitat Suitability for Bats

The combination of local habitats, connectivity to the wider landscape and reduced urban disturbance, increase the area's ability to support bats and their insect prey. However, the limited number of waterbodies may act as a limiting factor to population size. Consequently, the surrounding area is deemed to have **moderate** potential to support bats, with hedgerows providing potential flight lines leading from the site to Clayfield Copse and Caversham Park.

5.2 Daytime Assessment (Summary of Spires Ecology Report)

The preliminary bat roost assessment conducted by Spires Ecology found no evidence of bats, during the internal or external inspections. The roof void was cramped with a modern truss structure and high levels of internal storage. However, many of the hanging tiles present on the upper sections of the front and rear elevations, have lifted, revealing cobweb-free gaps. The lead flashing around the chimney was also lifted, resulting in gaps that could be utilised by bats to access the soffits, roof void and batten space. The Bat Roost Trigger Index for the house was calculated to be 0.55, therefore 16 Tower Close was considered to have a **low** potential to support roosting bats.

Spires Ecology recommended that 16 Tower Close be investigated further, in the form of a single bat activity survey conducted between May – September (inclusive). It was noted should roosting bats be observed, two further activity surveys would be required to provide information any roosts present, to help inform a European Protected Species license or Bat Mitigation Class license application (if required).

The full details of this survey can be found in the separate document (dated 2nd June 2022) submitted with the planning permission application.

5.3 Bat Activity Surveys

5.3.1 Activity Survey Overview

Two surveyors and two IR cameras were used for each of the bat activity surveys conducted. The surveyor and camera positions (shown in Figure 5) ensured all elevations and features with bat potential could be observed. These features were determined from both the Preliminary Bat Roost Assessment report (conducted by Spires Ecology) and professional judgement upon viewing the building during daylight hours (12th July 2022), prior to the activity surveys.

Initially, just a single bat activity survey was planned, as recommended in previous report. However, during the dusk emergence survey, conducted on 31st July 2022, three Soprano Pipistrelle (*Pipistrellus pygmaeus*) bats were seen emerging from 16 Tower Close. The presence of roosting bats, required additional activity surveys, to allow characterisation of the roosts. Consequently, a total of three activity surveys (2x dusk emergence and 1x dawn re-entry) were conducted at 16 Tower Close.

During all surveys there was a low but consistent level of bat activity, primarily using the gardens and trees surrounding the house to forage. Whilst commuting within the gardens was recorded, this seemed a secondary function for the flight paths. At least five species, including; Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Nathusius Pipistrelle (*Pipistrellus nathusii*), Brown Long-Eared (*Plecotus Auritus*) and Noctule (*Nyctalus noctule*), were recorded flying in and around the gardens of 16 Tower Close.

Over the course of the three activity surveys, a maximum of 3x Soprano Pipistrelle's and 3x Common Pipistrelle's were recorded utilising three different locations (Points 1 - 3 on Figure 7), around 16 Tower Close, for roosting.

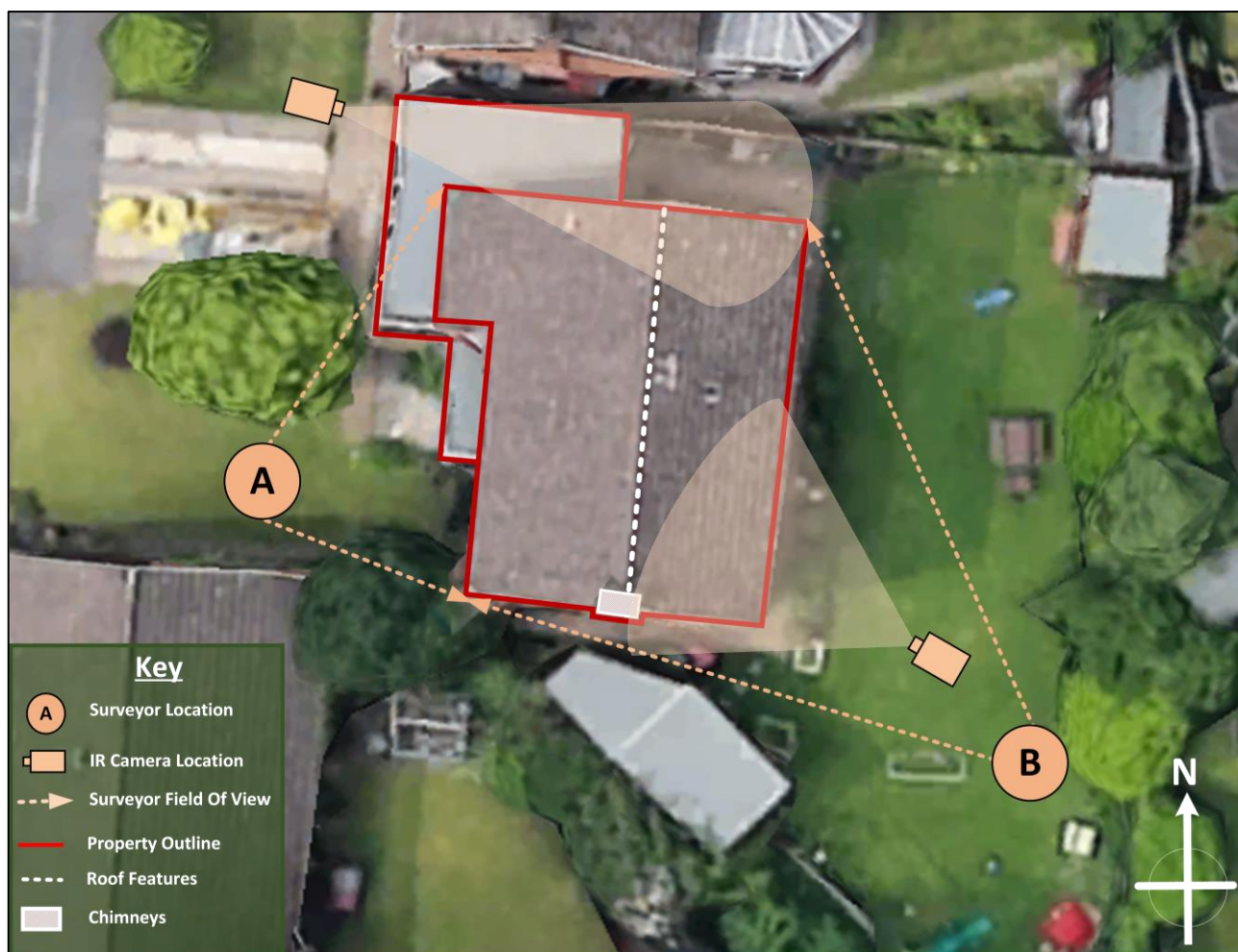


Figure 5 – Surveyor locations during the three bat activity surveys at 16 Tower Close

5.3.2 Activity Survey Weather Conditions

During all three activity surveys weather conditions were good and any bats present are likely to be active. Below are the date, time and weather details for the three bat activity surveys conducted -

- **31st July (Sunset 20:50)** – dry, 25°C, light breeze of 8km/h towards the south (#2 on the Beaufort Scale) and ~5% cloud cover at 20:30.
- **19th August (Sunrise 05:52)** – dry, 21°C, light air of 2km/h towards the north-west (#1 on the Beaufort Scale) and ~80% cloud cover at 03:50.
- **22nd September (Sunset 19:05)** – dry, 18°C, light air of 5km/h towards the north-west (#1 on the Beaufort Scale) and ~90% cloud cover at 18:50.

5.3.3 External Inspection Findings

Brief external checks were conducted at the initial scoping visit and before/after each activity survey, in daylight hours. During most of these inspections, bat droppings were found beneath locations with potential roosting features and the results can be seen in Table 3.

Table 3 – Evidence of bats found during pre-survey inspections at 16 Tower Close

Survey Type	Date	Type of Evidence	Location
Initial Scoping	12 th July 2022	6 x Bat droppings 3 x <i>Pipistrelle spp.</i> bats	Droppings were located on the rear door step, directly below lifted hanging tile on rear elevation (Point 1 on Figures 6)
Dusk Emergence	31 st July 2022	Bat droppings x7	Droppings were located on the rear door step and other hanging tiles, directly below lifted hanging tile on rear elevation (Point 1 on Figures 6 and 7)
Dawn Re-entry	19 th August 2022	Bat droppings x4	Droppings were located on the rear door step and ground, directly below lifted hanging tile on rear elevation (Point 1 on Figures 6 and 7)
Dusk Emergence	22 nd September 2022	Bat droppings x0	No droppings were seen during this inspection.

Prior to the first dusk emergence survey on the 31st July 2022, bat droppings were found under the lifted hanging tile on the rear elevation, the area around the gap was very clean and upon further inspection three bats (*Pipistrelle spp.*) were observed roosting in the batten space behind the tiles. Figure 6 is a photograph of the three roosting *Pipistrelle*'s, which has been colour corrected to improve the visibility of the bats.



Figure 6 – 3x *Pipistrelle spp.* bats roosting in the batten space behind the lifted hanging tile on the rear elevation at 16 Tower Close

5.3.4 Detailed Description of Each Bat Activity Survey

1. **31st July 2022** - During the first dusk emergence survey, there was a constant, moderate level of bat activity. The first bat, a Common Pipistrelle was seen at 20:22 (2mins after sunset) and bat activity was recorded until the end of the survey. The majority of bats were recorded during the first hour after sunset, with an approx. average of 3-4 bats, using the surrounding gardens at any given time. The highest number of bats (6x Common Pipistrelles) was recorded by Surveyor A (see Figure 5), between 20:41 and 20:55, foraging along the front gardens of No. 16-17 and then around the trees that border the gardens of the two properties (Figure 7). Throughout the survey, there was a higher level of bat activity towards the front (western) elevation, with multiple, constantly foraging bats. In the rear (eastern elevation) garden, some individual bats were seen foraging, however, approx. half the recorded passes were heard and not seen, as the bats were foraging amongst the trees to the south of the property (Figures 1 and 7). Whilst, some commuting bats (mainly Noctules) were recorded during the activity survey, this seemed a secondary function for the flight paths in the area.
During this activity survey at least four species of bat were recorded flying around the grounds of 16 Tower Close, including; Common Pipistrelle, Soprano Pipistrelle, Nathusius Pipistrelle, Noctule and Brown Long-Eared bats. However, the majority of the bats observed were Common Pipistrelles, with only intermittent recordings of the other four species.

A total of five bats were observed emerging from features on 16 Tower Close as listed below. A total of eight bats were also observed emerging from neighbouring properties (see additional notes section 5.3.4.1).

Time	No. Bats	Species	Building Feature	Notes
20:41	3	Soprano Pipistrelle	Hanging tile on rear elevation	Point 1 on Figure 7
20:44	2	Common Pipistrelle	Lifted lead flashing around chimney	Point 2 on Figure 7

2. **19th August 2022** - During the second (dawn re-entry) survey, there was regular, low level bat activity. The first bat, a Noctule was heard at 05:19 (33min before sunrise). This dawn re-entry survey was extended by 30mins, due to a number of bats still flying near the site at sunrise (05:52). As with the first survey, there was a higher level of bat activity at the front of the property. However, the majority of bat passes in both the front and rear gardens were commuting bats, and very little foraging activity was recorded during the dawn survey. The average number of bats using the gardens at any given time during this survey was one, as only individual bats were seen commuting along the flight paths (Figure 6). Four species of bat were recorded during the second activity survey, including; Common Pipistrelle, Soprano Pipistrelle, Noctule and Brown Long-Eared bats.

A total of four bats were observed re-entering features on 16 Tower Close as listed below. A total of six bats were also observed re-entering neighbouring properties (see additional notes section 5.3.4.1).

Time	No. Bats	Species	Building Feature	Notes
05:42	1	Common Pipistrelle	Lifted lead flashing around chimney	Point 2 on Figure 7
06:05	1	Soprano Pipistrelle	Hanging tile on rear elevation	Point 1 on Figure 7
06:12	1	Soprano Pipistrelle	Hanging tile on rear elevation	Point 1 on Figure 7
06:15	1	Soprano Pipistrelle	Hanging tile on rear elevation	Point 1 on Figure 7

3. **22nd September 2022** - During the third (dusk emergence) survey, there was regular, low level bat activity. The first bat, a Soprano Pipistrelle was heard at 19:08 (3min after sunset) and bat activity was recorded until 20:18. As with the previous surveys, there was a higher level of bat activity at the front of the property. The majority of bats were once again recorded within one hour of sunset, with an approx. average of 2 bats, using the surrounding gardens at any given time. The highest number of bats (3x Soprano Pipistrelles) was recorded by Surveyor A (see Figure 5), between 19:11 and 19:14, foraging around the trees that border the gardens of No.16 and No.17 (visible in Figure 7). As with previous surveys, there was a higher level of bat activity towards the front (western) elevation, however, the overall level of bat activity was much lower than the first dusk emergence survey. Foraging was the primary activity recorded and whilst there were some commuting bats (mainly Noctules), this seemed a secondary function for the flight paths in the area.

During this activity survey at least three species of bat were recorded flying around the grounds of 16 Tower Close, including; Common Pipistrelle, Soprano Pipistrelle and Noctule.

A total of four bats were observed emerging from features on 16 Tower Close as listed below. A total of eight bats were also observed emerging from neighbouring properties (see additional notes section 5.3.4.1).

Time	No. Bats	Species	Building Feature	Notes
19:08	1	Soprano Pipistrelle	Lifted lead flashing around chimney	Point 2 on Figure 7
19:23	1	Common Pipistrelle	Lifted lead flashing around chimney	Point 2 on Figure 7
19:26	2	Common Pipistrelle	Gap close to ridge on front elevation	Point 3 on Figure 7

5.3.4.1 Additional Noteworthy Observations

Bats were also recorded emerging from the two neighbouring properties directly south (No.17) and north (No. 15) of the site.

1. **31st July 2022** - During the first emergence survey a total of six bats were recorded emerging from 15 Tower Close; 4x Common Pipistrelles and 2x Brown Long-Eared bats emerged from the chimney (Point 4 on Figure 6). There were also two bats recorded emerging from 17 Tower Close; 2x Common Pipistrelles, emerged from the verge on the northern elevation (Point 5 on Figure 7).
2. **19th August 2022** - During the second dawn re-entry survey, a total of two bats were recorded re-entering 15 Tower Close; 2x Common Pipistrelles re-entered at the chimney (Point 4 on Figure 7). There was also a single bat recorded re-entering 17 Tower Close; 1x Common Pipistrelle, re-entered at the verge on the northern elevation (Point 5 on Figure 7).
3. **22nd September 2022** - During the third emergence survey a no bats were recorded emerging from 15 Tower Close. However, a total of eight bats were recorded emerging from 17 Tower Close; 6x Soprano Pipistrelles, emerged from the verge on the northern elevation (Point 5 on Figure 7) and 2x Common Pipistrelles, emerged the ridge (Point 6 on Figure 7).

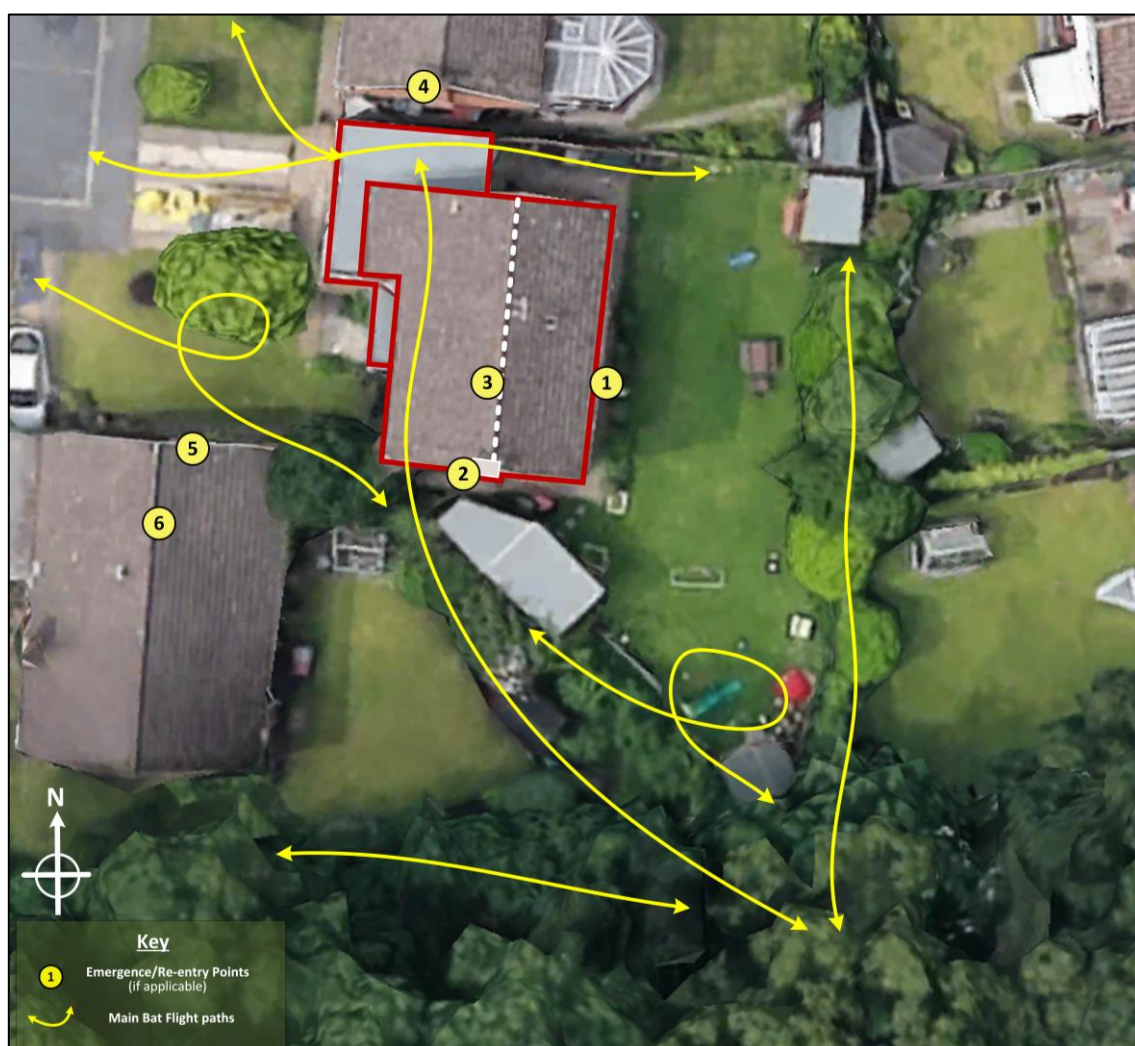


Figure 7 – Emergence points and main flightpaths used by bats, during the three activity surveys at 16 Tower Close

5.4 Constraints/Limitations

Bats are difficult to locate in large structures, with many potential roosting areas, particularly in inaccessible areas such as large buildings, finding the exact roosting site can be difficult, especially male/single bat roosting sites.

Bats can have seasonal use of buildings and due to their relatively small size and high mobility, they may arrive and start using a site after it has been surveyed, or roost somewhere else during the period it was surveyed. Prior to the initial bat assessment seasonal weather conditions may have washed away external droppings.

6 Discussion

6.1 Assessment of the Bat Roost

During the initial assessment of 16 Tower Close by Spires Ecology (25th May 2022), no evidence of bats was found, however, features that could be utilised by bats for roosting/accessing the roof void were present in the form of uneven hanging tiles on the front and rear elevations, gaps in the soffits and lifted lead flashing around the chimney. The Bat Roost Trigger Index for the property was calculated to be 0.55, resulting in a designation of **low** potential to support roosting bats. Consequently, at least one bat activity survey was required at 16 Tower Close, during the peak activity period (May-September) to determine if/how bats are utilising the building.

During the planned activity survey, the cursory inspection beforehand revealed bat droppings located beneath the lifted hanging tile on the rear (eastern) elevation (Table 3 and Figure 8). Closer investigation revealed three Pipistrelle bats, of undetermined species, roosting in the batten space behind the hanging tiles (Figure 6). Consequently, it was determined that two additional activity surveys were needed to determine if a European Protected Species Mitigation licence would be required, prior to any works being undertaken.

Bats were found to be utilising features at the site during all three of the activity surveys conducted. Two species of bat were recorded roosting at three locations around the property, these were Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*).

During the two of the three bat activity surveys conducted at the site, three Soprano Pipistrelles were seen emerging from beneath a lifted hanging tile on the rear elevation of the building (Figures 6 – 8). During the third activity survey, a single Soprano Pipistrelle emerged from lifted lead flashing around the chimney on the southern elevation (Figures 7 and 8). Throughout all three activity surveys, up to two Common Pipistrelles, were observed emerging from the lifted lead flashing around the base of the chimney (Figures 7 and 8). An additional (single) Common Pipistrelle was recorded emerging from a gap between ridge tiles, however, this only occurred during the final activity survey.

Consequently, the results from the activity surveys indicate that 16 Tower Close is currently being used as active summer roosts, for up to three Soprano Pipistrelles and three Common Pipistrelles.

6.1.1 Confirmed Roosting Points for Bats

Three distinct roosting points for bats were recorded during the three activity surveys conducted. Throughout the results, these locations have been assigned a number (1 – 3), which is used throughout the remainder of this report. The locations of these roosts are:

1. in the batten space behind the hanging tiles, on the rear (eastern) elevation (Figures 6 – 8);
2. under the lead flashing at the base of the chimney on the southern elevation of the property (Figures 7 and 8);
3. beneath the ridge tiles and possibly surrounding roofing tiles towards the southern end of the property (Figures 7 and 8).

6.1.2 Confirmed Access Points for Bat

A birds-eye view of the roost access points, confirmed during the three activity surveys, are shown in Figure 7 (Points 1 – 3). Additional pictures of roost access points are numbered and circled below in Figure 8.

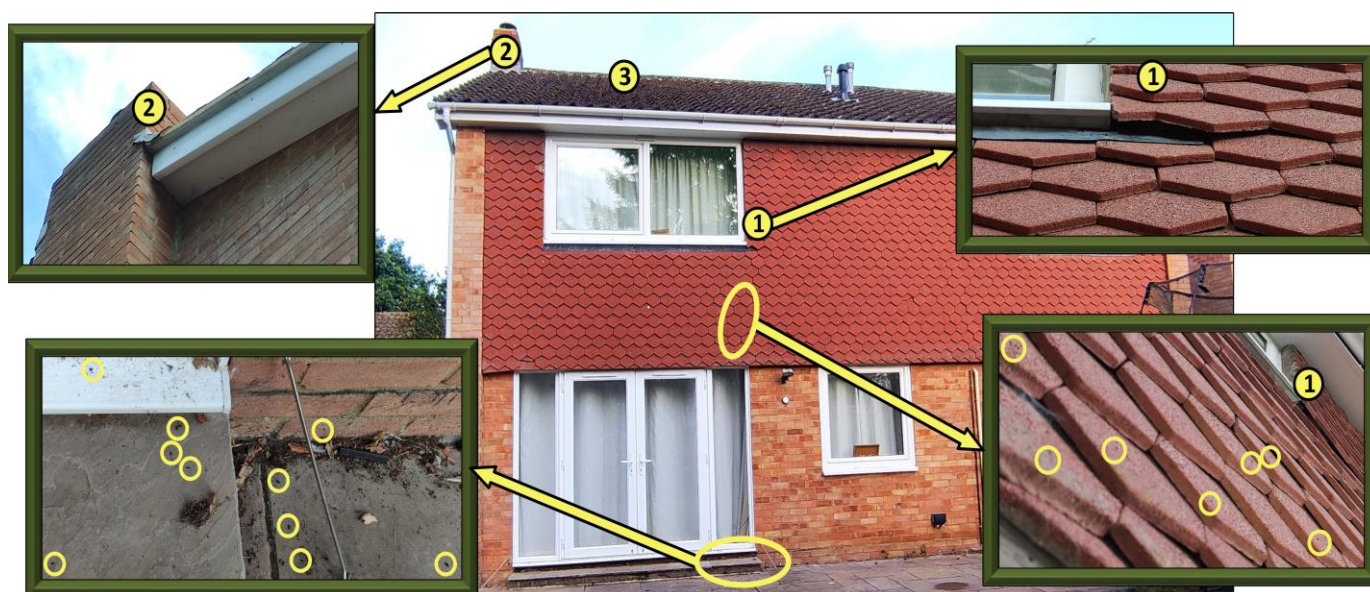


Figure 8 – Confirmed access points used by bats and locations of bat droppings, during three activity surveys at 16 Tower Close

6.1.3 Potential Hibernation Roosts

It is always possible that a building could be used by crevice-dwelling hibernating bats, but in this case, it is considered unlikely, due to the following factors:

- The crevices being used are underneath lead flashing and a single layer of clay hanging tiles; both of which have a low thermal mass and are prone to large temperature fluctuations. Combined with the small size of the roof void at the property, the roof void is likely to experience large temperature fluctuations during the winter months. Consequently, it is unlikely to provide the stable microclimatic conditions, needed by hibernating bats to conserve energy;
- Pipistrelles are rarely found in their summer roosts during winter;
- lack of underground or subterranean features.

However, there is always the low potential that bats could use the cavity wall for hibernation. As the building is occupied, the wall cavity may provide the stable microclimate needed by hibernating bats to conserve energy.

6.2 Potential Impact of Proposed Works on Bats

The potential impacts are based on the development proposals at the time of writing. This impact assessment may need to be reviewed and amended as necessary, in light of any alterations to the development proposals.

6.2.1 Potential Direct Impacts

Direct impacts on bats and their roosts (breeding sites and resting places) may occur, through direct harm or disturbance as well as loss, damage and obstruction of access.

The planned works include the erection of a two-storey extension on the front (western) elevation and a single storey, wraparound extension, on the Front (western), side (northern) and rear (eastern) elevations. During the surveys conducted, 16 Tower Close was confirmed to be a current day roost for low numbers (<3) of two species of bats. Roosting bats were observed using three points around the building, as shown in Figures 7 and 8. Under the current development proposals, alterations will occur to at least one of the areas being used by roosting bats. Consequently, in the absence of mitigation, the planned works will lead to, the obstruction, disruption or permanent loss of one or more bat roosts.

Therefore, a European Protected Species Licence or Bat Mitigation Class Licence will be required, for works to proceed legally and to ensure the conservation of the local bat population.

6.2.2 Potential Indirect Impacts

The suburban nature of 16 Tower Close, its proximity to habitats suitable for bats and their insect prey, and the confirmation that the building is being utilised by bats; require that any extensions to the current roof or new roof voids, only use Type 1F bitumen felt roofing underlay. This measure is to ensure the safety and suitability of the current roosts and prevent future risks to the local bat population. Modern, non-woven, breathable, roofing membranes are known to pose an entanglement risk to bats, which can result in their death (Waring 2014), and must not be installed into known bat roosts.

6.2.3 Lighting

The site is in a suburban area, however, there is minimal streetlighting: with only one streetlight within 50m of the house. Currently, the gardens around the site are unlit and provide dark and tree-covered areas for foraging bats. Consequently, the planned works should not increase the level of lighting around the property, external floodlights should be avoided at the rear of the property and external lights should have a reflector hood fitted. This will ensure that any impacts on foraging and commuting bats using the flight paths recorded should be minimal.

6.2.4 Loss of Commuting Habitat

No Commuting habitat is due to be impacted under the current proposals.

6.2.5 Loss of Foraging/Feeding Grounds

No foraging habitat is due to be impacted under the current proposals.

6.3 Mitigation Proposals

The planned works will impact on at least one of the areas being used as a bat roost (hanging tiles on rear elevation). Consequently, a European Protected Species Licence or Bat Mitigation Class Licence will be required, for works to proceed legally and to ensure the conservation of the local bat population

Additionally, some precautionary measures should be taken in order to meet the requirements of National Planning Policy Framework (NPPF) and Reading Borough Councils Biodiversity Action Plan, to maintain the favourable conservation status and avoid long-term damage to local bat populations.

Including;

- A bat friendly underlay such as bitumen felt with a hessian reinforcement (Type 1F) felt or wooden sarking board will be used; breathable membranes, which are harmful to bats will not be used. This will also help meet the Government's new guidelines on Net Biodiversity Gain (2022), by ensuring the new roof void is safe for the current roosts and local bat populations.
- Hanging tiles that will be disturbed during the works, should be removed before the next summer roosting period begins, to prevent disturbing roosting bats.

- A tool box talk should be given to the contractors on site prior to commencing work. This should explain the locations of bat roosts present on site, how to safely soft strip materials such as hanging tiles and lead flashing and the actions to undertake, should they come across a bat during works.
- External lighting to the rear or sides of the building should be placed at a low level and have a reflector hood, to prevent light disturbance effecting flight paths and foraging areas for bats in the area.

7 Conclusions

Bats are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation contravening (Natural Habitats &c.) Regulations 2010, (which make it illegal to intentionally kill, injure or otherwise disturb bats, or to damage, destroy or obstruct access to a bat roost, whether bats are present or not). In some cases, if the proposed work will have a detrimental effect on bats or disturb or damage their roost then an EPS licence from Natural England has to be applied for.

Initial observations consider the surrounding area to have **moderate** potential to support bats. The combination of local habitats, connectivity to the wider landscape and reduced urban disturbance, increase the area's ability to support bats and their insect prey. However, the limited number of waterbodies may act as a limiting factor to population size.

The preliminary bat roost assessment was conducted by Spires Ecology on the 25th May 2022 and the findings are detailed in the associated report (dated 2nd June 2022). No evidence of bats was found, during the internal or external inspections. However, there were several gaps that could be utilised by bats to access the hanging tiles, soffits, roof void and batten space. Initially, 16 Tower Close was considered to have a low potential to support roosting bats and a single activity survey was required. However, roosting bats were confirmed during the initial survey and so three activity surveys were conducted.

Results from the three bat activity surveys showed constant, low numbers of foraging bats. At least five species of bat were recorded flying around the site, including: Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Nathusius Pipistrelle (*Pipistrellus nathusii*), Noctule (*Nyctalus noctula*) and Brown Long-Eared bats (*Plecotus auritus*).

A maximum of three Soprano Pipistrelle's and three Common Pipistrelle's were recorded utilising three different areas around the building for roosting (Figures 6 - 8). **Consequently, 16 Tower Close is confirmed to be a current and active day roost for low numbers of two species of bats.**

Taking this information into account it is concluded that the planned works, without mitigation, will result in the disturbance/destruction of a confirmed bat roost, and could negatively impact local populations. **Therefore, an EPS Licence is required for works to proceed legally and to ensure the continued safety of the local bat population.**

8 References

- Collins, 2016 - Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition) – The Bat Conservation Trust, London
- Mitchell-Jones & McLeish, 2004 - Bat Workers Manual (3^{ed} Edition) – Joint nature Conservation Committee, Peterborough
- Bat Mitigation Guidelines – Natural England 2006
- The Conservation and Habitat Regulations 2010
- National Planning Policy Framework 2022
- The Interactions of Bats and Breathable Roofing Membranes– Dr Stacey D. Waring 2014 – PhD Thesis

1 List of Resident UK Bat Species

Table A – Alphabetical list of all resident bat species found throughout the UK in 2022

Common name	Scientific Name
Alcathoe bat	<i>(Myotis alcathoe)</i>
Barbastelle bat	<i>(Barbastella barbastellus)</i>
Bechstein's bat	<i>(Myotis bechsteinii)</i>
Brandt's bat	<i>(Myotis brandtii)</i>
Brown long-eared bat	<i>(Plecotus auritus)</i>
Common pipistrelle	<i>(Pipistrellus pipistrellus)</i>
Daubenton's bat	<i>(Myotis daubentonii)</i>
Greater horseshoe bat	<i>(Rhinolophus ferrumequinum)</i>
Grey long-eared bat	<i>(Plecotus austriacus)</i>
Leisler's bat	<i>(Nyctalus leisleri)</i>
Lesser horseshoe bat	<i>(Rhinolophus hipposideros)</i>
Nathusius' pipistrelle	<i>(Pipistrellus nathusii)</i>
Natterer's bat	<i>(Myotis nattereri)</i>
Noctule	<i>(Nyctalus noctula)</i>
Serotine	<i>(Eptesicus serotinus)</i>
Soprano pipistrelle	<i>(Pipistrellus pygmaeus)</i>
Whiskered bat	<i>(Myotis mystacinus)</i>