



Elite Ecology

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**5 Walden Avenue,
Arborfield, Reading**



Bat Emergence Survey

May 2025



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Bat Emergence Survey

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0. Executive Summary

- 0.1 This report has been prepared at the request of Mr. B Chikkanna (proprietor). It relates to the potential presence of bats and birds at the proposed re-development site located at 5 Walden Avenue, Arborfield, Reading, Berkshire, RG2 9HR (OS Grid Reference: SU 75487 67298). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.
- 0.2 The surveyed buildings are part of a proposal to make renovations to the main building of interest (**B1**) and demolish the existing outbuilding (**B2**). The survey was commissioned in support of an upcoming planning application to Wokingham Borough Council.
- 0.3 According to the original Preliminary Ecological Appraisal (PEA) carried out by Urban Tree Experts Ltd. the amount of potential ingress/egress points and suitable roosting features indicated that the building was of the following bat roosting potential:
- **B1 (Main Dwelling) = Low**
 - **B2 (Outbuilding) = Low**

Therefore, a minimum of one further bat emergence survey was required for the buildings during the bat survey season (May to September, inclusive). This was subsequently undertaken in May 2025 by Elite Ecology.

0.4 Summary

Bat Presence/Absence

From the survey visit undertaken on the site, it can be concluded that no bats were observed emerging from the building(s) during the course of the survey. Therefore, it can be concluded that the buildings B1 and B2 at 5 Walden Avenue, Arborfield contain **no bat roosts**. However, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified around the site.

Bird Presence/Absence

From the survey visits undertaken on the site, it can be concluded that the surveyed structure B1 is of **low** potential for nesting birds, and B2 is of **negligible** potential for nesting birds. No bird nests were identified on or within the surveyed structures. Despite this, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

Ecological Value of Building Units

The ecological value of the buildings referred to as B1 and B2 have been deemed as **negligible** to bats due to the lack of roosting bats present.

The ecological value of the buildings referred to as B1 and B2 to birds have been deemed **negligible** due to the lack of nests found.

0.5 Recommendations

The recommendations for 5 Walden Avenue, Arborfield can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensorised lights triggered by large bodies should be incorporated.
- **Optional:** Install a variety of bat boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.
- **Optional:** Install a bat friendly planting scheme.
- **Optional:** A variety of [bird boxes](#) can be installed to enhance the nesting opportunities for birds within the area.

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1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Mr. B Chikkanna (proprietor). It relates to the potential presence of bats and birds at the proposed re-development site located at 5 Walden Avenue, Arborfield, Reading, Berkshire, RG2 9HR (OS Grid Reference: SU 75463 67297). To fulfil this brief, Elite Ecology undertook both a desktop study and a field survey.

1.2 Site Description

The site itself is based within a semi-rural setting located between Reading and Wokingham, which is situated in the county of Berkshire, approximately 8 kilometres in a straight line from Reading town centre. The habitats located on the survey site are amenity grassland, building(s) of interest, hard standing ground, ornamental shrub, and scattered trees. The buildings of interest measure a total of approximately 161m². Therefore, the site is considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting, and foraging opportunities.

Figure 1: An aerial photograph of the surveyed site at 5 Walden Avenue, Arborfield (as shown by the red outline). The arbitrary building numbers referred to throughout this report are also illustrated.



1.3 **Proposed Works**

The surveyed buildings are part of a proposal to make renovations to the main building of interest (**B1**) and demolish the existing outbuilding (**B2**). These works will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed redevelopment site.

1.4 **Aims of Surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (4th edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including barn owls)** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources, and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural England Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2. Survey Methodology

2.1 Desktop Survey Methodology

- 2.1.1 A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth, and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.
- 2.1.2 The local records centre was contacted to provide data on all protected and notable species, including invasive species, within 2km of the proposed development site. Thames Valley Environmental Records Centre (TVERC) were the relevant local record centre for this project.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds onsite.
- Any evidence of potential bat roosts and bird nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscopes, torches, and ladders. This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks, and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings, or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscopes, torches, ladders, and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams, and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains, and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few, or no mature trees, parkland, woodland, or wetland would generally equate to having **negligible/low** potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having **high** potential.

The amount of additional survey effort required for each feature will depend on its rating:

- **None** – No further survey effort is required.
- **Negligible** – No further survey effort is required.
- **Low** – One further emergence survey is required (structures only).
- **Moderate** – Two further emergence surveys are required.
- **High** – Three further emergence surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats, or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk activity surveys under the following protocol:

- Commencing the survey fifteen minutes before sunset (dusk survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk).
- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

- 2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

- 2.3.1 The survey was undertaken by licensed bat ecologist/s, members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and/or Elite Ecology staff members:

Ms. Katherine Ward: MSc, Ecologist.

Ms. Antoinette Du Rose: MSc, Assistant Ecologist.

Ms. Saraswoti Byanjankar: MSc, Assistant Ecologist.

2.4 Field Surveys

2.4.1 Site Surveys

Urban Tree Experts Ltd. was employed to conduct the Preliminary Ecological Appraisal and Daytime Bat Walkover of the site on the 6th of March 2025. It was concluded that the main building of interest (B1) and the smaller outbuilding (B2) were characterised as having low potential to support roosting bats.

Elite Ecology carried out a single separate Dusk Emergence Survey on the property to determine whether bats were present on the 15th of May 2025.

Bat Emergence Survey

2.4.2 Roost Surveys

The building at 5 Walden Avenue, Arborfield was externally and internally inspected for the presence of bats with the use of various types of equipment (including binoculars, torches, endoscopes, and ladders) in full daylight. The activity survey uses a variety of bat detectors that include Bat Box Duet, SSF Bat2, EchoMeter Touch, EcoObs Batcorder, and NightVision Aids (NVA's) in the forms of Nightfox ARC infrared lights, Ordoro 4K infrared camcorders, and XB10 infrared torches. The following table outlines the environmental variables from the survey visits. The following table outlines the environmental variables from the survey visit:

Environmental variables	PEA And Daytime Bat Walkover – 6 th of March 2025	Activity Survey 1 of the Building – 15 th of May 2025 Dusk
Temp Start:	17°C	13°C
Temp Finish:	11°C	11°C
Humidity Start:	74%	66%
Humidity Finish:	51%	68%
Cloud Cover Start:	0%	100%
Cloud Cover Finish:	0%	100%
Wind Speed Average:	11mph	11mph
Precipitation:	None	None

3. Results

3.1 Desktop Survey Results

MAGIC maps (magic.defra.gov.uk) was consulted and confirmed that there are no statutory designated sites located within the 2 km radius of the development site. However, one current European Protected Species Licence (EPSL) for bats was granted within this radius. Given this, it indicates that there is potential for bat activity in the wider area.

Ecological data was offered and recommended to the client by Elite Ecology but was refused.

3.1.1 Designated Sites

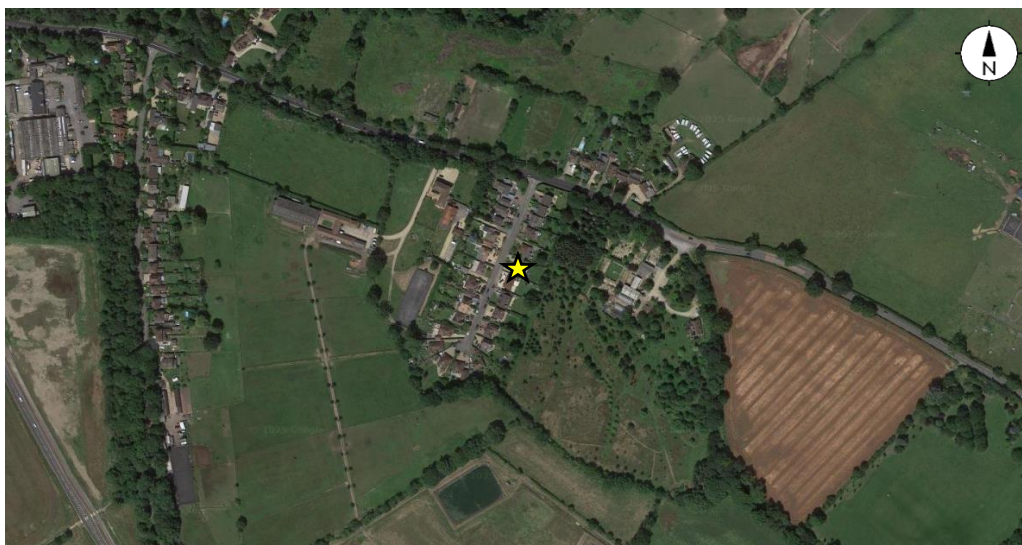
As the current proposal remains within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 Field Surveys

3.2.1 Habitat Description

The site itself is located within a semi-rural setting between Reading and Wokingham, which is situated south-east England. The habitats located on the survey site are amenity grassland, the building of interest, hard standing ground, ornamental shrub, and scattered trees. Within the wider landscape, amenity grassland, hedgerows, residential building (with their associated gardens), running water, scattered trees, and semi-improved grassland are all evident. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to 5 Walden Avenue, Arborfield.



3.2.2 Building survey

One main building (**B1**) was located on the site, with a detached outbuilding (**B2**) also present.

Main Building (B1) and Detached Outbuilding (B2)

The external and internal inspection was carried out by Urban Tree experts Ltd. Outlined in the original Preliminary Ecological Appraisal conducted in March 2025.

B1 – Main Building

External Inspection

The external features of both the main building of interest (B1) and the detached outbuilding were inspected for signs of bats such as droppings and staining. The main building is a brick-built, detached property that is only partially rendered. Overall, the property appears to be in good external condition. The roof is multi-pitched and tiled with a slight convex profile. There are some gaps seen on the roof but were deemed too narrow to be suitable for bat entry. All roof tiles are intact, with no missing or broken sections. All verges are sealed and hip/ridge tiles cemented, presenting no opportunities for roosting. The extensions on the property are single storey flat roofs covered with intact bitumen felt. Most of the fascias are well fitted, except one of the flat roofed extensions shows gaps between the wall and fascia that could potentially support roosting features. The lead flashing around the chimney stacks and the roof of the dormer window is well fitted with no entry points visible. The attached garage and rear ensuite presented no obvious opportunities for bat entry.

There was no evidence of bats externally on any of the buildings on the property.

Internal Inspection

An internal inspection of the main building (B1) and outbuilding (B2) was carried out to assess for any signs of bats. Most of the loft of the main building has been converted into living space, with accessible under eave storage areas. These are accessed through doors and are unlit, insulated and partially boarded. The roof of the main building is lined with a membrane, exhibiting no rips or tears and is tightly fitted. The garage and ensuite have no loft space, with the garage roof cladded with timber and ensuite plastered with no internal features suitable for bats.

Bat Emergence Survey

B2 – Detached OutbuildingExternal Inspection

The outbuilding (B2) has a hipped roof and is also brick-built. It does possess some features that could support crevice dwelling species, such as the rear elevation tiles were slightly displaced and sections of rotten wood fascia.

There was no evidence of bats externally on any of the buildings on the property.

Internal Inspection

The outbuilding (B2) roof is unlined internally with visible tiles and rafters so could give potential to roosting features considering the gaps on the rear elevation, other than that the internal roof is well fitted.

No evidence of bat activity was found internally for both buildings on site.

3.2.3 Summary of the Building Inspection

The buildings on site were given varying bat roosting potential based on the features they contain. The following table summarises the findings.

Building	Nesting Bird Potential	Bat Roost Potential	Number of Bat Emergence Surveys Required	Number of Survey Positions Required for a Bat Emergence Survey
B1	Low	Low	1	3
B2	Negligible	Low	1	1

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Table 7.2. Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
One survey visit. One dusk emergence survey ^a (structures). No further surveys required (trees).	Two separate dusk emergence survey visits ^b .	Three separate dusk emergence survey visits ^b .
a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see para 5.2.44). In some cases, more than one survey may be needed, particularly where there are several buildings in this category. b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least three weeks apart, preferably more.		

3.2.4 DNA Results

No droppings were collected from the site; therefore, no DNA analysis was carried out.

3.2.5 Emergence Surveys

One emergence survey was undertaken on the buildings on the 15th of May 2025.

Emergence Survey 1 (15th of May 2025)

The emergence survey was undertaken at dusk with sunset being recorded at 20:49.

During this survey, no bats were seen to emerge from **B1** or **B2**. However, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified around the site.

Figure 3: An aerial photograph of the surveyed building(s) (red outline), the survey positions (yellow stars) and the common bat flight paths (dotted blue lines).



Summary

In summary, **no bats** were observed emerging from the building(s) during the course of the surveys. Therefore, the surveyed structures contain **no bat roosts**.

Despite this, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified around the site.

4. Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the Re-development

The surveyed buildings are part of a proposal to make renovations to the main building of interest and demolish the existing outbuilding. The potential impacts for the site have been identified as follows:

4.2.1 Designated Sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Bat Roosts

Impact	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	Negligible	Negligible	Negligible
Justification:	The structure was found to contain no roosting bats during the site survey. Therefore, it can be assumed that no bat roosts are present within the surveyed property.	The structure was found to contain no roosting bats during the site survey. Therefore, it can be assumed that no bat roosts are present within the surveyed property.	The structure was found to contain no roosting bats during the site survey. Therefore, it can be assumed that no bat roosts are present within the surveyed property.
Any further action:	No further action is required.	No further action is required.	No further action is required.

4.2.3 Bird Nests

Due to the lack of previous bird nests on or within the residential dwelling, the proposed scheme of works will be of a **negligible** effect to the local bird populations.

4.2.4 Foraging and Commuting Habitat

It is considered that the re-development of the site would have a **negligible** effect on potential foraging and commuting habitat. The site itself offers good foraging habitat, and ecological connectivity with the adjacent land containing better opportunities for bats to use. Post development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5. Recommendations

5.1 Bats

From the site survey, it has been established that the building is not in use for bat roosts. However, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified around the site.

Therefore, several considerations and enhancements are recommended to improve the site for bat species.

It is recommended that a minimum of [one Eco Bat Box](#) or similar should be installed on a suitable structure on the site, to provide for any future roosting opportunities.

Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensored lights triggered by large bodies should be incorporated.

The site can also be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Common alder
Cherry pie	Dogrose
Corncockle	Elder
Corn marigold	English oak
Corn poppy	Gorse
Echniacea	Guelder rose
English bluebell	Hawthorn
Evening primrose	Hazel
Field poppies	Honeysuckle (native)
Honesty	Hornbeam
Ice plant 'pink lady'	Ivy
Knapweed	Jasmine
Mallow	Pussy willow
Mexican aster	Rowan
Michaelmas daisy	Silver birch
Night-scented stock	Herbs
Ox-eye daisy	Angelica
Phacelia	Bergamot
Poached egg plant	Borage
Primrose	Coriander
Red campion	English marigolds
Red valerian	Fennel
Scabious	Feverfew
St. John's Wort	Hyssop
Sweet William	Lavenders
Tobacco plant	Lemon balm
Verbena	Marjoram
Wallflowers	Rosemary
Wood forget-me-not	Sweet Cicely
Yarrow	Thyme

5.2 **Birds**

No birds were found to be nesting on site. However, the potential was deemed **low** as the flat roof extensions of the main building (B1) could still have the potential to be used by birds to breed. Therefore, it is recommended that any works on the structure takes place outside the bird breeding season (March to August, inclusive), or if this is not possible, the buildings must be inspected by a suitably qualified ecologist no more than twenty-four hours prior to the start of the works on these structures.

In addition to this, a variety of [bird boxes](#) can be installed around the site to enhance the nesting opportunities for a variety of species within the local landscape. At least one of the following options should be incorporated:

- [Apex Bird Box](#)
- [Apex Robin Box](#)
- [Large Bird Nest Box](#)

Bird boxes installed on buildings should face between north and east to avoid the strong sunlight and wet winds. Boxes installed on trees can face any direction as the trees will provide shelter however the entrance must be kept clear of branches and vegetation. All bird enhancements must be situated in a way that prevents access to predators such as cats.

6. Summary

6.1 Bat Presence/Absence

From the survey visit undertaken on the site, it can be concluded that no bats were observed emerging from the building(s) during the course of the survey. Therefore, it can be concluded that the buildings B1 and B2 at 5 Walden Avenue, Arborfield contain **no bat roosts**. However, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats were identified around the site.

6.2 Bird Presence/Absence

From the survey visits undertaken on the site, it can be concluded that the surveyed structure B1 is of **low** potential for nesting birds, and B2 is of **negligible** potential for nesting birds. No bird nests were identified on or within the surveyed structures. Despite this, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

6.3 Ecological Value of Building Units

The ecological value of the buildings referred to as B1 and B2 have been deemed as **negligible** to bats due to the lack of roosting bats present.

The ecological value of the buildings referred to as B1 and B2 to birds have been deemed **negligible** due to the lack of nests found.

6.4 Recommendations

The recommendations for 5 Walden Avenue, Arborfield can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- Artificial lighting should be avoided around compensatory roosting features. If artificial lighting is required, a sensitive lighting plan with sensored lights triggered by large bodies should be incorporated.
- **Optional:** Install a variety of bat boxes around the site post development to enhance the site for the local bird populations. Some suitable examples are shown in **Section 5**.
- **Optional:** Install a bat friendly planting scheme.
- **Optional:** A variety of [bird boxes](#) can be installed to enhance the nesting opportunities for birds within the area.

7. References

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8. Appendices

Appendix A: Site Plans

Appendix B: Eco Data Map

Appendix C: Artificial Light and Bats

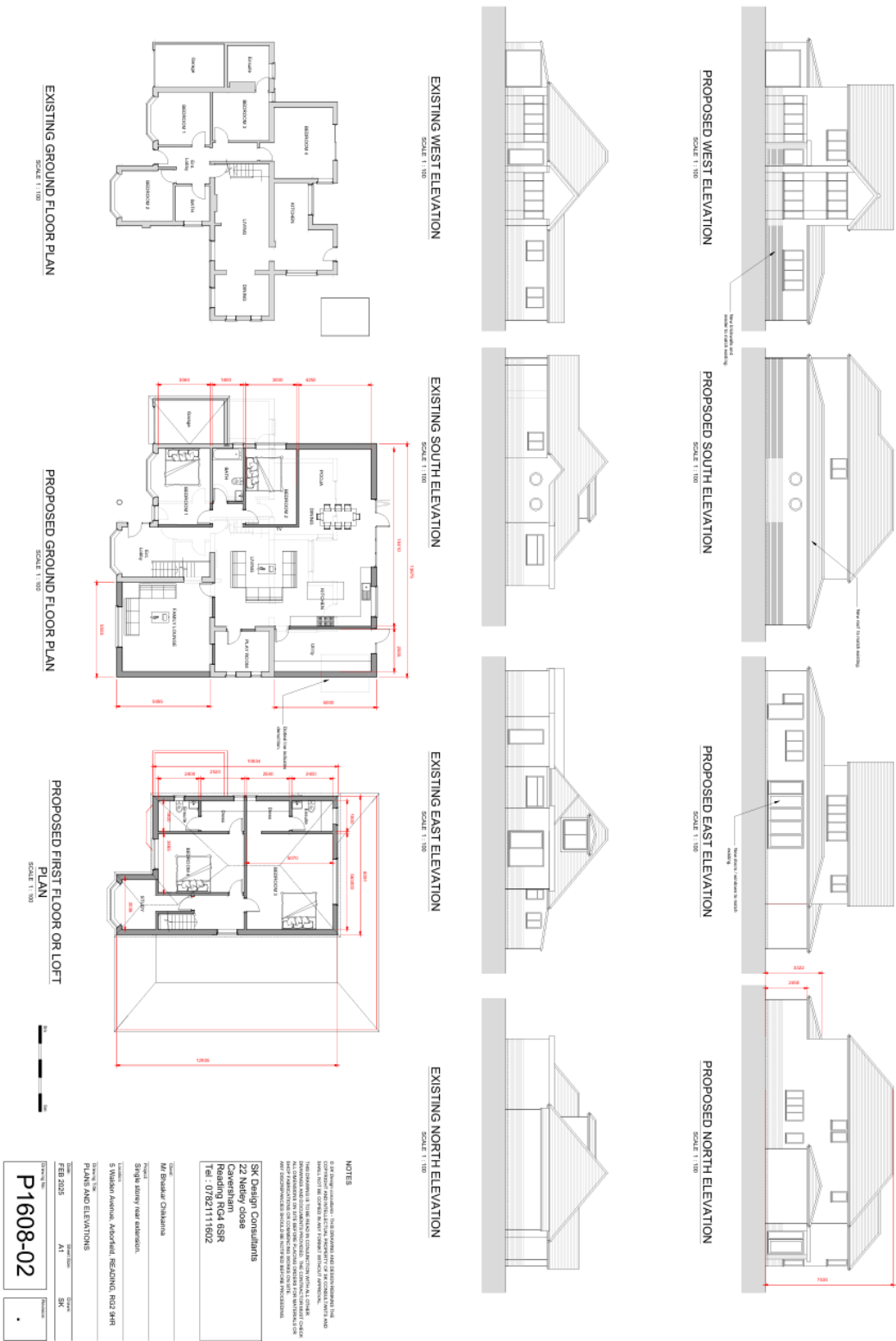
Appendix D: Photographic Records

Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix A: Site Plans

The site plans have been provided By Urban Tree Experts Ltd. in the Preliminary Ecological Appraisal (PEA), at the time of this report's preparation.



Appendix B: The Ecological Data Search Maps

No desktop data has been ordered at the production of this report.

Appendix C: Artificial Lighting and Bats

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Photographic Records

Plate 1: A photograph of the front of **B1**.



Bat Emergence Survey

Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat			
January		February	
	Hibernating; using up fat reserves.		Still hibernating; few fat reserves left.
March		April	
	Some activity; occasional bat seen feeding.		Awake and feeding at night.
May		June	
	Females looking for nursery sites.		Young born, usually only one.
July		August	
	Young still suckling.		Young start catching insects; females leave nursery to find males.
September		October	
	Mating season begins; start building fat reserves for hibernation.		Search for suitable hibernation site.
November		December	
	Hibernation begins although still some activity in warm weather.		Hibernating.

Appendix F: Legislation and Policy

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in December 2024, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Appendix G: Night Vision Aid (NVA) Screenshots

Plate 1: A NVA Screenshot of the front of **B1** from left-side angle.



Plate 2: A NVA Screenshot of the front of **B1** from right-side angle.



Plate 3: A NVA Screenshot of the back of **B1** & **B2** from left-side angle.



Plate 4: A NVA Screenshot of the back of **B1** & side of **B2** from right-side angle.



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The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

Should any equipment be damaged or lost on site at the fault of the client(s), then Elite Ecology withholds the right to charge 100% above the current market value for that exact product or the nearest similar product.

The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.