

23 Tanhouse Close,
Hedge End,
Southampton,
Hampshire, SO30 0FB

Bat Preliminary Roost Assessment

February 2023

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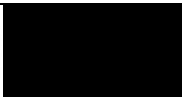
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Bat Preliminary Roost Assessment
23 Tanhouse Close, Hedge End, Southampton, Hampshire, SO30 0FB
for
Cindy Parker

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This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions, scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

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1. This report provides details of an initial bat survey carried out by Hampshire Ecological Services Ltd for Cindy Parker in connection with a proposal to construct a two-storey extension on the north-east elevation of 23 Tanhouse Close, Hedge End, Southampton, Hampshire, SO30 0FB (approximate Ordnance Survey Grid Reference SU495121). The site consists of a house, driveway and front and rear garden. The location of the site is shown in *Figures 1* and *2* and a plan of the site is shown in *Figure 3* (see *Section 6*).
2. An internal and external survey of the building was carried out by ecologist Hannah Yates BSc (Hons) accredited under bat licence 2015-11159-CLS-CLS on the 25th January 2023.
3. The house is a converted bungalow. Full details of the building are given in *Table 4.2.1.* in *Section 4.2*). Details of potential bat access points and external roosting features are illustrated in *Images 4.3.1.1 – 4.3.1.2.*
4. There are some shrubs and bushes on the property which provide some limited foraging habitat in the immediate vicinity of the building. Vegetation in neighbouring gardens and tree-lines connect the site to areas of high quality foraging habitat in the wider landscape such as woodland and waterways.
5. Approximately c.156 bat droppings were found in the roof void (see *Table 4.2.2.* in *Section 4.2*). The droppings were consistent in size, shape and texture with those of pipistrelle bats. The locations of the bat droppings are illustrated in *Figure 4* in *Section 6*.
6. As the house is a bat roost, a bat European Protected Species (EPS) licence from Natural England is required before any work can be undertaken on the roof. Three bat activity surveys should be carried out between May and September (with at least two between mid-May and August). This gives sufficient information to provide the basis of the information that would be required for an EPS licence.
7. Changes in lighting can affect foraging and commuting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation, and security lights should operate on a timer, to avoid any negative impact on bats.
8. A detailed method statement with a mitigation strategy aimed at maintaining the conservation status of bats will need to be prepared as part of a bat European Protected Species (EPS) licence from Natural England. In brief, this will include the following:
 - The roof tiles, hanging tiles and other features with bat roost suitability (such as soffits and lead-flashing) will be removed carefully by hand under strict ecological supervision to ensure bats are not using these areas. This will ideally be completed in September/October once maternity colonies have dispersed and before bats have begun to hibernate; or in March before

bats have returned to form maternity colonies. However, it may take place at any time outside of hibernation season given it is not used as a maternity roost.

- Retention of the existing bat access points or like-for-like replacement of any lost (in similar locations and aspects), *e.g.* using bat access tiles.
- The roof lining of the replacement roof void **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). This is currently a Natural England licence requirement whilst a safe alternative is being researched. This is because bats can become entangled in breathable membranes and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat European Protected Species licence from Natural England.
- To allow bats access to the roof voids, the roof felt should be cut near the proposed bat access points so that a gap of 50mm wide by 40mm high is present allowing bat access. Additionally, all sections of roofing felt should be overlapped to create gaps which bats can crawl through.
- The use of high intensity lighting should be avoided, particularly near retained vegetation and any bat mitigation measures (particularly access points).
- Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.

9. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission (biodiversity net gain). Therefore, the following outline enhancements are proposed:

- at least one integrated bat box/bat brick (*e.g.* a Habibat™ Bat Box, an Ibstock Enclosed Bat Box, a Schwegler Bat Tube, or similar), which provides a cavity that is incorporated into the external build structure to offer roosting space for bats will be installed in the new extension. Alternatively, if this is not viable (because of the construction methods), then at least one woodstone style bat box (*e.g.* Vivara Pro WoodStone Bat Box, Beaumaris Woodstone or similar) will be erected on an undisturbed aspect of the building;
- one 32mm bird box, such as a Vivara Pro Seville 32mm Woodstone Nest Box (suitable for blue tits and coal tits) will be erected on a tree within the site; and
- at least one swift boxes, such as Ibstock Eco-habitat or No. 18 Schwegler swift box, either incorporate into the build structure or mounted on the building.

The proposed bird boxes are summarised in *Table 5.6.4.1*.

10. The proposed enhancement measures are shown in *Figure 5* in *Section 6*.

11. Other enhancements for wildlife that the owners of the site may choose to employ are given in *Appendix C*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

12. This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapses it may be advisable to conduct further survey work to obtain up-to-date information, thereby ensuring protected species compliance.
13. According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there are three internationally statutory designated sites within 5km of the site, and four nationally designated sites within 2km of the site. None of these areas should be affected by this small-scale works and all links will be maintained.
14. There have been seven granted bat European Protected Species (EPS) licences within 2km of the site. Due to their close proximity, it is likely that the bats roosting on site are part of the same meta-population. However, due to the small-scale of the proposed works, any impacts are considered to be minimal.

2 INTRODUCTION

2.1 General

This report provides information from an initial bat survey carried out by Hampshire Ecological Services Ltd for Cindy Parker in connection with a proposal to construct a two-storey extension on the north-east elevation of 23 Tanhouse Close, Hedge End, Southampton, Hampshire, SO30 0FB (approximate Ordnance Survey Grid Reference SU495121). The location of the site is shown in *Figures 1 and 2 in Section 6*.

2.2 Site description

The site consists of a house, driveway, and front and rear garden. The building surveyed is shown on the plan in *Figure 3 in Section 6*.

The site is on the north-east side of Tanhouse Close, on the east side of Hedge End. The immediate surroundings consist of residential housing in all directions, which extend to the north and the west. There are agricultural fields and woodland to the south and east of the site. In addition, Hoe Moor Creek and the River Hamble are located c.600m south and c.1.3km south-east of the site.

2.3 Proposed activities

This survey was carried out in connection with a proposal to construct a two-storey extension on the north-east elevation of the property.

2.4 Current planning status

Planning permission is being applied for at this site.

2.5 Objectives of the survey and report

The survey by Hampshire Ecological Services Ltd included internal and external inspections of the building to identify bat roost suitability and to systematically search for bats and evidence of bats. The aim was to identify if bats were present or likely to use the site for roosting.

The survey and the report writing were carried out in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition* (Collins, 2016). Any deviations from the guidelines are justified in the relevant sections.

Additionally, all ecological surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/advice.aspx>), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (i.e. in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

2.6 *Structure of this report*

This report is structured as follows:

- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;
- *Section 3* describes the survey methods;
- *Section 4* describes the results;
- *Section 5* evaluates the findings;
- *Section 6* contains the figures including:
 - *Figure 1* gives aerial photographs showing the site location;
 - *Figure 2* gives an Ordnance Survey map showing the location of the site;
 - *Figure 3* gives a plan of the building surveyed;
 - *Figure 4* gives the locations of bat droppings; and
 - *Figure 5* gives the indicative locations of the proposed enhancements measures.
- *Section 7* gives photographs of the site;
- *Section 8* lists the references;
- *Appendix A* gives information on relevant legislation;
- *Appendix B* gives information on bat ecology; and
- *Appendix C* lists other enhancements for wildlife (for information, not part of the planning application).

METHODS**3.1 Desk study**

The *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) was used to search for designated sites on or adjacent to the site including Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. The search area was 5km for SAC and SPA sites and 2km for LNRs, NNRs, Ramsar sites and SSSIs, as specified in Hampshire's *Biodiversity Checklist*. The search area is also 500m for Sites of Importance to Nature Conservation (SINCs) and ancient semi-natural and ancient replanted woodlands.

In addition, the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) was used to search for granted European Protected Species (EPS) licences in relation to bats within 2km of the site.

A data search from the Hampshire Biodiversity Information Centre (HBIC) has not been commissioned by the client in relation to this site.

3.2 Field survey**3.2.1 Date, time and weather**

An external and internal inspection of the building was conducted during the daytime on the 25th January 2023. The weather conditions during the survey were cold (2°C) and dry with 100% cloud cover and a light air (Beaufort scale 1).

3.2.2 Personnel

The survey was carried out by Hannah Yates BSc (Hons). She is experienced in undertaking roost surveys and is accredited under level 2 class bat licence 2015-11159-CLS-CLS.

This report was reviewed by John Poland CEnv MCIEEM CBiol MSB, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), a Chartered Environmentalist (CEnv), a Chartered Biologist (CBiol) and multi-species licence holder with 20 years of experience in ecological consultancy and Victoria Russell MCIEEM who is a full member of the CIEEM and multi-species licence holder with over 23 years of experience in ecological consultancy.

All staff adhere to the Chartered Institute of Ecology and Environmental Management's (CIEEM) *Code of Professional Conduct*.

3.2.3 *Assessment of current bat roost suitability*

Because bats are crevice-dwelling mammals it is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally practical or acceptable. Examples are where bats roost between the roofing felt and tiles or slates, around window frames and behind bargeboards. These areas cannot be inspected, but a surveyor would know that bats might roost here because there are places where bats could gain entry. A pipistrelle bat is small enough to fit into a match box and can roost in gaps just 14-20mm wide.

The building was assessed for its **bat roost suitability** according to the following factors that influence the likelihood of bat roosting:

- Surrounding habitat: whether there are potential flight-lines and bat foraging areas nearby.
- Construction detail: the type and construction of architectural features such as attics, bargeboards, soffit boxes, lead-flashing, cavity walls and hanging tiles that could be used by roosting bats. Some construction details and materials are more favourable to bat occupation than others.
- Building condition: whether the building has no roof or has a sound roof without any potential bat access points.
- Internal conditions: bats favour sheltered locations with a stable temperature regime, protection from the elements and little wind/light/rain penetration.
- Potential bat access points: whether there is flight and crawl access.
- Potential roosting locations: the presence of bat-accessible voids, cracks and crevices.

The risk of bat roosts being present will be lower where structures have:

- Urban setting with little greenspace.
- Heavy disturbance.
- Small, cluttered roof void (particularly for brown long-eared bats).
- Modern construction with few gaps or crevices that bats can fly or crawl through (although pipistrelles may still be present).
- Prefabricated steel or sheet materials.
- Active industrial premises.

The above list provides generic criteria and there are exceptions to consider. For example, pipistrelle roost sites are often found in modern housing estates and therefore the absence of bats from such locations should not always be assumed.

Some information on bat ecology is included in *Appendix B*.

3.2.4 *Systematic inspection for bats or evidence of bats*

The building was assessed for its suitability to support roosting bats using the following access and inspection equipment: high-quality 10x42 binoculars; a 1,000,000 candlepower Clulite™ CB2 torch; an LED pen torch; an Explorer Premium™ wireless inspection camera with recordable monitor; and a 3.8m surveyors' ladder. Binoculars were employed to view higher areas such as

potential access points on the outside of the building. A description of the building was recorded on a survey sheet and digital photographs were taken as a permanent record.

Visual, systematic examinations were made for bats and evidence of bats in the building, both internally and externally, of the following:

- roof beams, especially the ridge beam;
- cracks, crevices and sheltered voids;
- the floors and stored items;
- external features such as cracks and holes in the walls;
- wall and door surfaces;
- window and door frames; and
- wall bases.

Evidence of roosting bats includes droppings, feeding remains and dead bats, but also staining from urine and fur-oils, scratch marks, odour, the presence of bat-fly (Nycteribiid) pupal cases, and in some cases, the absence of cobwebs.

Bat droppings can prove beyond doubt that bats use a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points. The location, size, shape, texture and colour of the droppings can be used to aid species identification. DNA analysis of droppings is also possible and samples are taken where necessary. The number and condition (age) of droppings can indicate the size of the roost and when it was last used.

Following the internal and external inspections, the building was assigned a level of suitability for being used by roosting bats. This was based on the criteria in *Table 3.2.4.1* (Collins, 2016).

Table 3.2.4.1. Bat Roost Suitability.

Suitability	Description of roosting habitats	Description of commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (<i>i.e.</i> unlikely to be suitable for maternity or hibernation).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, <i>i.e.</i> not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only)	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. The site is close to and connected to known roosts.

4

RESULTS**4.1 Desk study****4.1.1 Designated sites**

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are three internationally statutory designated sites within 5km of the site, and four nationally designated sites within 2km of the site. These are listed in *Table 4.1.1.1*.

Table 4.1.1.1. Statutory designated sites; non-statutory designated sites and ancient semi-natural and ancient replanted woodlands within the designated search areas of the site.

Level of designation	Designation	Name	Distance & direction from site
International	SPA	Solent & Southampton Water	c. 2040m east
	Ramsar	Solent and Southampton Water	c.1880m south-east
	SAC	Solent Martine	c. 2250m south-east
National	SSSI	Upper Hamble Estuary and Woods	c. 1910m east
	NNR	-	-
County	LNR	Manor Farm LNR	c.260m east
		Wildern	c.1110m north-west
		Netley Common	c.1740m west
Local	SINC	-	-
	Ancient woodland	-	-
		-	-

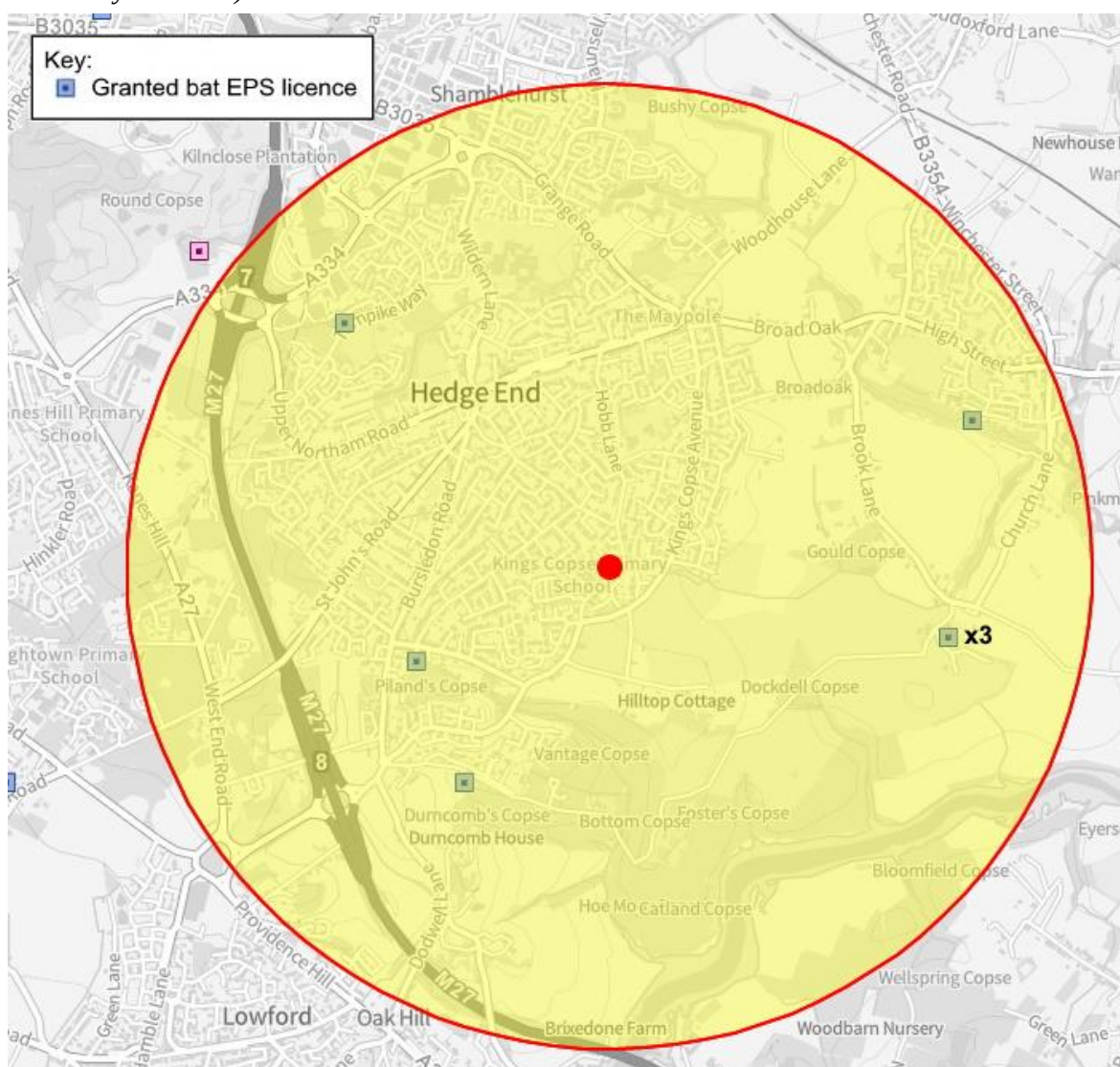
4.1.2 Bats

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been seven bat European Protected Species (EPS) licences granted within 2km of the site. These are listed in *Table 4.1.2.1* and their locations are shown in *Figure 4.1.2.1*.

Table 4.1.2.1. Granted European Protected Species (EPS) licences within 2km of the site.

Species subject of licence	Type of habitat affected	Date licence was granted	Distance & direction from site
Common pipistrelle	Resting place	29/04/2015	c.920m south-west
Common pipistrelle, soprano pipistrelle and brown long-eared	Breeding site and resting place	01/09/2019	c.1080m south-west
Common pipistrelle, soprano pipistrelle, brown long-eared and natterer's bat	Resting place	08/04/2013	c.1450m east
		01/08/2014	
		09/01/2014	
Common pipistrelle and soprano pipistrelle	Resting place	09/01/2014	
Common pipistrelle	Resting place	25/04/2013	c.1520m north-west
Common pipistrelle	Resting place	24/10/2012	c.1610m north-east

Figure 4.1.2.1. Location of sites with granted bat EPS licences within 2km of the site (site location marked by a red dot).



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4.2 Survey of buildings

The construction details and photographs of the building are summarised in *Table 4.2.1*. Additional photographs are given in *Section 7*.

Table 4.2.1. Summary of the building's construction details.

Type/Name	House	
Description	A converted bungalow with large dormer windows.	
No. of storeys	2	
Roof type	Pitched with sections of flat roof	
Roof cladding	Tile	
Ridge	Tile	
Wall type	Brick	
Exterior	Dormer windows with hanging tiles	
Photos	South-west elevation	North-west elevation
		
	South-east elevation	North-east elevation
		
Building dimensions	c.10m wide x c.8.5m long	

Roof void description	Cluttered, floored with wooden boards 
Frame	Wooden beams with ridge beam
Roof lining	Bitumen roofing felt
Roof void dimensions	Main roof void: c.10m wide x c.8.5m long
Roof void height	c.1m (main roof void)
Potential roosting locations	Against the ridge beam and between the roof tiles and the internal lining. 

Bat evidence	Yes, approximately 156 bat droppings 
Bat suitability	High
Further surveys needed?	Yes, three bat activity surveys

4.3 *External potential bat access points*

The majority of the roof appears well-sealed and in good condition. However, there are several potential bat access points into the roof void of the house as well as some exterior features that also provide potential roosting locations for bats. Therefore, the building is classed as having high suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

The locations and details of potential bat access points and potential roost locations are illustrated in *Images 4.3.1.1 – 4.3.1.2*.

Image 4.3.1.1. Location of potential bat access points and potential roost locations on the north-east elevation of the house.



Image 4.3.1.2. Location of potential bat access points and potential roost locations on the north-west elevation of the house.



4.4 *Commuting and foraging habitat*

There are some shrubs and bushes on the property that provide some limited foraging habitat in the immediate vicinity of the building. Vegetation in neighbouring gardens and tree-lines connect the site to areas of high-quality foraging habitat in the wider landscape such as woodland and waterways.

Bats follow linear landscape features such as lines of trees, hedges, buildings and waterways in order to commute from their roost sites to their feeding grounds. Likewise they use these features to navigate between feeding areas and alternative roosts.

4.5 *Evidence of bats*

There are approximately c.156 bat droppings in the roof void (see *Table 4.2.2.* in *Section 4.2*). The droppings are consistent in size, shape and texture with those of pipistrelle bats. The locations of the bat droppings are illustrated in *Figure 4* in *Section 6*.

4.6 *Other ecological constraints*

4.6.1 *Birds*

There are some trees and shrubs on site that are suitable habitat for nesting birds.

5 **INTERPRETATION AND EVALUATION**

5.1 **Constraints**

5.1.1 *Constraints on survey data*

Detailed searches often result in the discovery of evidence of bats. However, although such surveys can identify the presence of bats it is more difficult to prove absence due to the crevice-dwelling nature of these elusive mammals. Bat droppings may be missed where there is debris to obscure them (and also, very old droppings generally crumble away to dust).

The site visit was undertaken in January, outside the active bat season. However, it is possible to assess the building and its suitability for roosting bats.

5.1.2 *Constraints on the mitigation, compensation and enhancement measures*

There is a limit to the amount of enhancement measures that are possible (and reasonable) on such a small householder site. In addition, there are no trees on site that would be suitable for bird and/ or bat boxes to be attached.

Further surveys are required to fully inform the design of the mitigation and compensation measures. Therefore, the mitigation described in *Section 5.6* is indicative.

5.2 **Potential impacts of the proposed development on bat roosts**

5.2.1 *General*

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. there are designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by these small-scale works and all links will be maintained.

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been seven bat European Protected Species (EPS) licences granted within 2km of the site, the closes being c.920m south-west of the site. Due to their proximity, it is likely that the bats roosting on site are part of the same meta-population. However, due to the small-scale of the proposed works any impacts are considered to be minimal.

5.2.2 *Commuting and foraging bats*

There are some shrubs and bushes on the property that provide some limited foraging habitat in the immediate vicinity of the building. Around the site there are tree-lines that connect the site to areas of high-quality foraging habitat in the wider landscape such as woodland and waterways. Woodland and waterways provide high quality foraging habitat for a number of different species of bat. The

connectivity around the edges of the site will be retained and as such no impact to commuting and foraging bats (and hence bat populations in the local area) is anticipated.

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation (particularly the shrubs and bushes), and security lights should operate on a timer, to avoid any negative impact on bats.

Any lighting installed should avoid spillage of greater than 1 lux onto any retained vegetation. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

5.2.3 *Building*

Due to the number of suitable roosting features on the building (*e.g.* missed and slipped hanging tiles), the building has high bat roost suitability. This was confirmed by the presence of bat droppings characteristic in size, shape and texture with those of pipistrelle bats. Therefore, this building is a confirmed bat roost.

The proposed works include construction a two-storey extension on the north-east elevation of the house. The proposed works have the potential to disturb, injure or kill a bat, and destroy or obstruct access to a bat roost.

As a confirmed bat roost a bat European Protected Species (EPS) licence will be required before any work can take place on the roof. Further surveys will be required to gather enough information about bat populations (including species, numbers and status of roost sites) to support the bat EPS licence application (see *Section 5.5*).

The works to the building will be carried out in line with methods detailed in a Natural England bat EPS licence. Mitigation, compensation, and enhancement measures will be required to be incorporated into the extended building. A brief summary of proposed mitigation, compensation and enhancement measures is given in *Section 5.6*. If necessary, the mitigation and compensation measures will be updated following the results of the emergence and/ or re-entry surveys.

5.3 *Alternative roosting potential*

There are buildings nearby that could provide alternative roosting for bats (see *Figure 1* in *Section 6*). In addition, there are several mature trees in the vicinity which could provide bat roosting opportunities.

5.4 *Survey report expiry*

This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapses it may be advisable to conduct further survey

work to obtain up-to-date information to advise work, thereby ensuring protected species compliance.

5.5 ***Further survey***

As the building is a confirmed bat roost, three bat activity surveys must be carried out (using at least three surveyors) between May and September (with at least two carried out between mid-May and August), when bats will be active. This information is required for a European Protected Species (EPS) licence.

Presence or likely absence of bats is normally advised by a combination of internal and emergence surveys (*Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd edition (Collins, 2016)).

5.6 ***Outline mitigation, compensation and enhancement measures***

5.6.1 *General*

From the 20th July 2021, the Government published the revised National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021). The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in June 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

It also states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*".

The updated National Planning Policy Framework (NPPF) also states (paragraph 170) that: "*Planning Policies and decisions should contribute to and enhance the natural and local environment by... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*"

The updated Planning Policy Guidance (PPG) for the Natural Environment, updated in July 2019 states (paragraph 020) that:

"Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand."

The updated PPG provides examples of how biodiversity net gain can be achieved. Measures suggested include "creating new habitats" and "enhancing existing habitats".

It is proposed that the enhancements to provide biodiversity net gain will also be in the form of the following:

- new bat roost provision;
- sensitive lighting (for bats and other wildlife); and
- new bird nesting provision.

These enhancements are detailed in the following sections.

Other enhancements for wildlife that the owners of the site may choose to employ are given in *Appendix C*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

As the building is a confirmed bat roost, a bat licence from Natural England must be obtained before works commence. A detailed method statement, with a mitigation strategy aimed at maintaining the conservation status of bats, will be prepared as part of the bat licence from Natural England. The proposed mitigation is described in the following sections. If necessary, this will be modified following the results of the dusk emergence and/ or pre-dawn re-surveys.

All proposed mitigation and enhancement measures are subject to supplied plans.

5.6.2 *Mitigation and compensation measures*

A toolbox talk will be given to the contractors, prior to any work commencing, to inform them on how to protect bats during the works. It will include an overview of the ecological issues and licensing implications on site; the precautions to be taken and the method of hand demolition in sensitive areas.

One woodstone style bat box (Vivara Pro WoodStone Bat Box, Beaumaris Woodstone or similar) will be erected in an undisturbed aspect of the building prior to the commencement of the works, with one required for each species present on site or roost lost (as per latest Natural England advice). The indicative location of this box is shown in *Figures 5* in *Section 6*. This bat box will be erected between 2.5m and 5m, facing south or south-east with a clear exit path. It will remain on site permanently (and shall be repaired or replaced as necessary).

A destructive search (tile strip) of the affected areas of the roof tiles will be carried out. Works should ideally commence in either September/ October before bats have begun to hibernate; or in March/ April after bat have come out of hibernation. However, work at any time of year may be acceptable (subject to licensing from Natural England) providing the destructive search is carried out in mild spells (above 5°C) in winter and the emergence survey does not suggest the status of the roost has changed and it is a maternity roost. If a maternity roost, then works cannot take place between May and the end of August/ September. The tiles and other affected features with bat roost suitability (such as soffits and lead-flashing) will be removed carefully by hand under strict ecological supervision to ensure bats are not using these areas.

Any bats found during the destructive search will be placed within the bat box erected on an undisturbed aspect of the building. Bats will be captured by hand by the ecologist and, after being checked for injuries, will be transported immediately in cotton drawstring holding bags to the bat box.

In the event that an injured bat is encountered during the destructive search, it will be taken to a veterinary surgeon so that the extent of its injuries can be assessed. If not life-threatening it will be taken to one of Hampshire Bat Group's designated carers.

Once the supervising ecologist is satisfied that all affected structures that may provide bat roosting opportunities have been safely searched and removed or made unsuitable for further bat habitation, the remaining works will proceed without further supervision by a suitably qualified ecologist. The action to take if any bats are discovered during unsupervised works will also be made clear.

The proposed work will involve the construction of a two-storey extension on the rear elevation of the building. This will affect the roof and hanging tiles, as well as other features with bat roost suitability. Bat access tiles (see *Image 5.6.2.1.*) will be installed to retain access into the roof voids and will be added into the extension to create access into the new voids.

Image 5.6.2.1. An example of a Bat Access Tile Set from the Tudor Roof Tile Co. Limited is given below (taken from Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build (Williams, 2010)).



The roof lining **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). This is currently a Natural England licence requirement whilst a safe alternative is being researched. This is because bats can become entangled in breathable membranes and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat licence from Natural England.

To maintain access for bats into the roof voids, the roofing felt must be cut near the proposed bat access points so that a gap of 50mm wide by 40mm high is present allowing bat access. Additionally, all sections of roofing felt should be overlapped to create gaps which bats can crawl through. Ideally access points should be by beams to facilitate bat movement.

Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.

5.6.3 Lighting

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto roost exit points and retained vegetation and any lighting installed should avoid spillage of greater than 1 lux near to or directly onto the bat access points and retained vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by disturbing roosts and reducing their foraging area, or indirectly by severing commuting routes from roosts. Therefore, the following (modified from *Bats and lighting in the UK* (ILP 2018)) should be undertaken:

- **Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any retained vegetation. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.

For any security lighting, the following should also apply:

- **Power** It is rarely necessary to use a lamp of greater than 2000 lumens (150W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.
- **Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed.
- **Timers** If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.
- **Alternatives** The requirement for security lighting in each instance should be carefully considered and only used where absolutely necessary to deter crime.

The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

5.6.4 Bird boxes

Bird boxes will be built into or attached to the exterior wall of the new building to provide new nest sites. The bird boxes are detailed in *Table 5.6.4.1*.

A swift box will be built into or attached to the exterior wall of the house to provide a new nest site. Swift boxes can be supplied and installed by Hampshire Swifts <https://www.hampshireswifts.co.uk> and a new soffit design is also available (this box is also suitable for sparrows). In addition, a woodstone bird box suitable for use by blue tits and great tits will be erected within vegetation on

the site or attached to the exterior wall of the building. These bird boxes will provide new nest sites. The bird boxes are detailed in *Table 5.6.4.1*.

Table 5.6.4.1. Bird boxes to be erected within the site with additional details on siting them to increase chances of occupancy.

Type & quantity	Typical species	No.	Height	Additional information
Vivara Pro Seville 32mm Woodstone Nest Box 	Blue tits, great tits	1	2-4m	- Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly. - Chances of occupation can be increased by positioning boxes near vegetation.
Ibstock Eco-habitat 	Swifts	1	≥ 5m	- Can either be incorporated into the build structure or mounted onto a building. - Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line. - Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest.

5.7 **Requirement for Habitats Regulations licence – European Protected Species (EPS) licence**

A bat European Protected Species (EPS) licence or Bat Mitigation Class Licence (formerly Bat Low Impact Class Licence, if qualifying) site registration from Natural England is necessary before work commences on the house.

A licence from Natural England permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.

Evidence is required from bat activity surveys (dusk emergence and/ or pre-dawn re-entry surveys) during the bat active season between May and September in order to gather enough information about bat populations (including species, numbers and status of roost sites) to support a bat licence application.

Survey data supporting licence applications must be up-to-date *i.e.* have been conducted within the current or most recent optimal survey season (May to September). Therefore, licensable work is

delayed until, during or after the next survey season, updated survey(s) will be required to support an application.

Natural England takes a minimum of 30-60 working days to process licence applications following receipt of all the relevant documentation. This includes an application form, plans and a Method Statement. This includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

It is not possible to apply for an EPS licence until full planning permission has been granted and any conditions relating to wildlife fulfilled, although Local Planning Authorities usually request the information prior to determining a planning application request. Additional time will be required where any revisions to a proposed mitigation strategy are necessary to obtain the licence.

Figure 1. Aerial photographs showing the location of the site.



Figure 2. An Ordnance Survey map showing the site location, as indicated by the red arrow.



Reproduced with permission of Ordnance Survey under licence no. 100049977.

Figure 3. Plan of the site with the building surveyed highlighted in red.

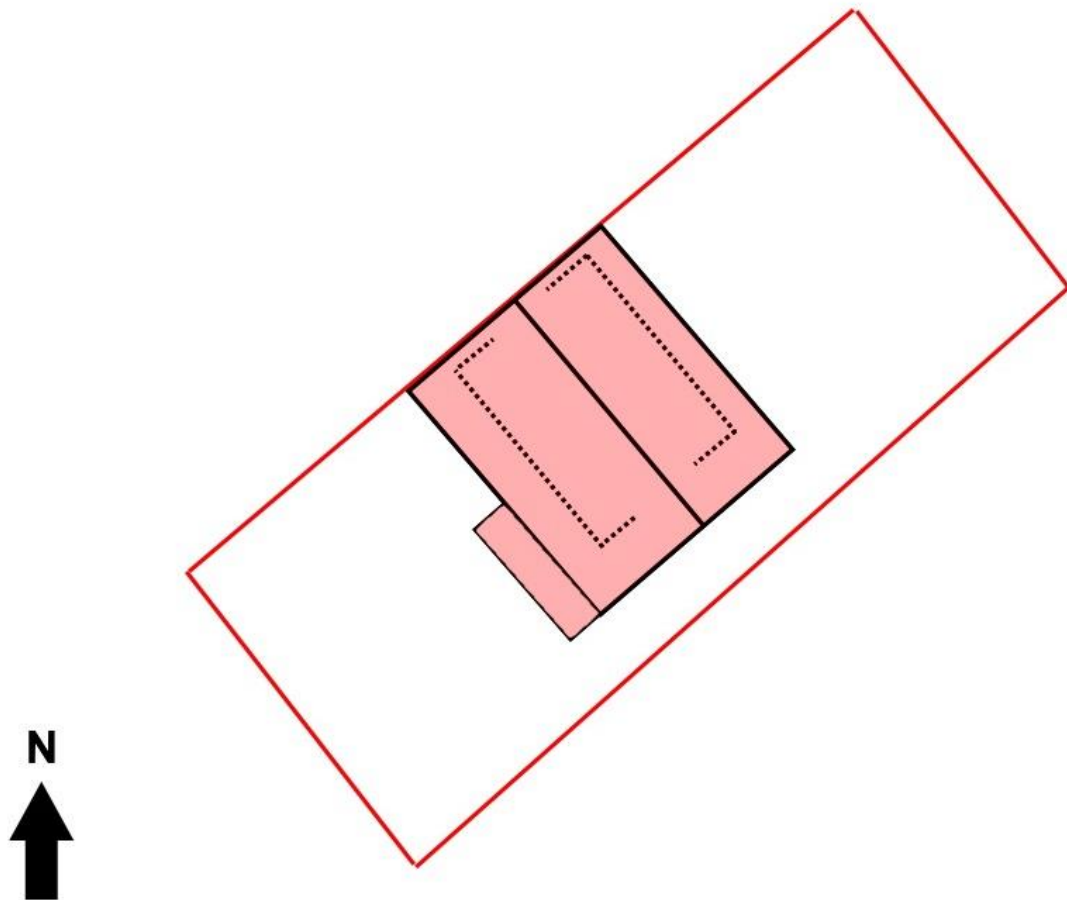


Figure 4. Plan showing the indicative locations of bat droppings within the roof void (not to scale).

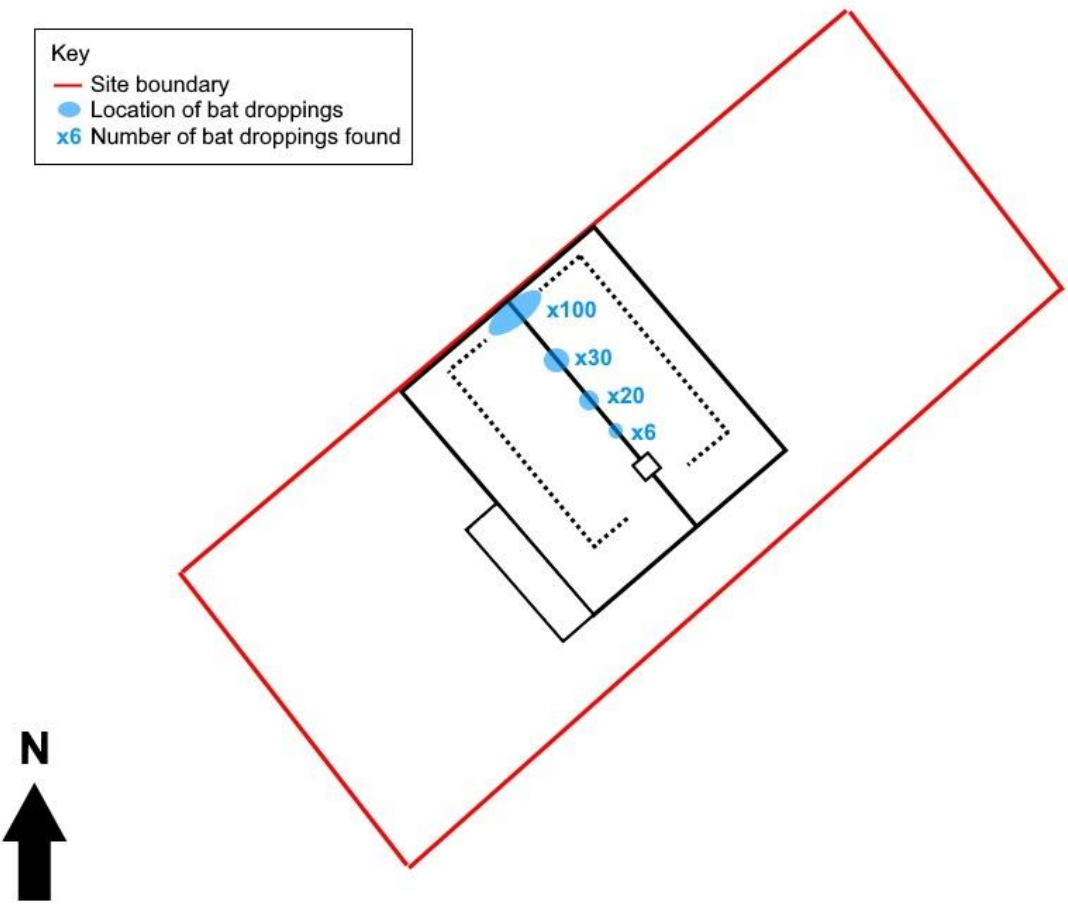
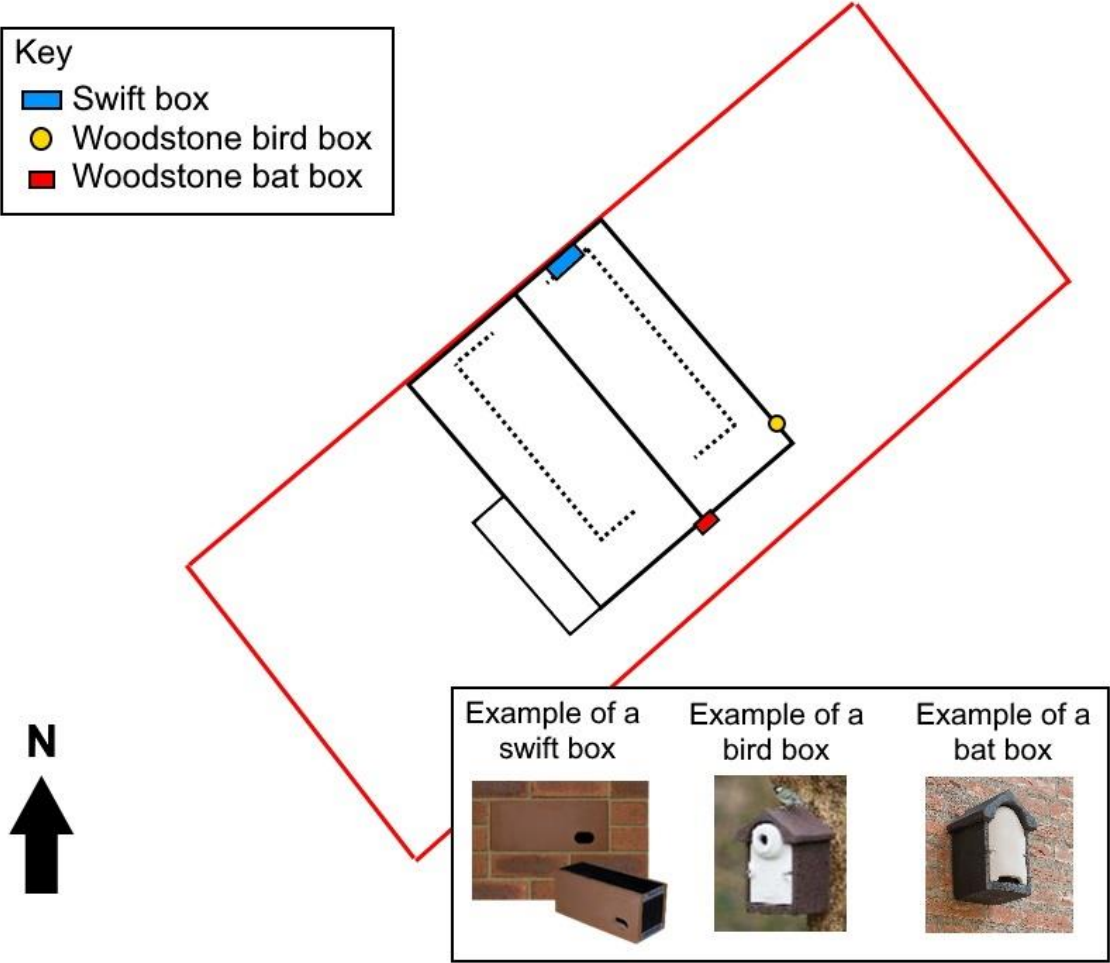


Figure 5. Plan showing the indicative locations of proposed enhancement measures (not to scale).



PHOTOGRAPHS

Photo 1. A small tree to the south of the building which could provide foraging habitat.



Photo 2. Shrubs and bushes in the front garden provide some foraging habitat for bats in the immediate vicinity of the building.



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9.1 *Legal context*

All species of British bat are protected by the *Wildlife and Countryside Act 1981* (as amended) extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on the *Conservation of Habitats & Species Regulations 2017*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat (in such a way as to be likely to significantly affect: (i) the ability of a significant group of bats to survive, breed or rear/nurture their young; or (ii) the local distribution or abundance of the species concerned);
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present (bats tend to reuse the same roost).

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats & Species Regulations 2017* it is possible to apply for a European Protected Species (EPS) licence from Natural England. Licences are only issued where Natural England are satisfied that three derogation tests are met. These are: that the activity is for **imperative reasons of overriding public interest**; that there must be **no satisfactory alternative**; and that **favourable conservation status of the species must be maintained**.

Consideration of these three derogation tests was previously left to Natural England as part of their deliberations on whether to grant a licence for the development activity after a planning consent has been issued. However, the regulations now require that **all** public bodies, i.e. **Local Planning Authorities** (LPAs), have regard to the requirements of the European Habitats Directive when carrying out their functions. As a result, LPAs **must** address the three derogation tests when considering a planning application that could impact upon any European Protected Species (EPS).

9.2 **National planning context**

9.2.1 *General*

Surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/default.aspx>), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (*i.e.* in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

In addition to the above, *Section 40* of the *Natural Environment and Rural Communities Act (2006)* imposes a new duty on all public authorities to have regard for biodiversity.

9.2.2 *National Planning Policy Framework (NPPF)*

From the 19th February 2021, the Government published the revised National Planning Policy Framework. The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in June 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- an economic objective;
- a social objective; and
- an environmental objective.

The environmental objective is to "*contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy*".

Planning policies and decisions should contribute to and enhance the natural and local environment by "*protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*" and "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*".

If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted.

Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

It states that "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

It should be noted that the "*presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*".

The NPPF also encourages "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*" and aims to "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*". This applies to non-statutory designated sites including Sites of Importance for Nature Conservation (SINCs) and equivalent county wildlife sites.

Early engagement with all necessary stakeholders, including expert bodies, is encouraged by the NPPF.

Bats use different roosting sites throughout the year according to their life cycle requirements.

Hibernation during the winter months requires roosting sites that are cool and humid. As conditions improve through the spring, bats become increasingly active and tend to use transitional roosting sites. During the summer months, females give birth in maternity roosts. Maternity roosts tend to be warm and temperature-stable, which aids rapid development of the young, which are weaned in late summer. In the autumn, adult bats congregate in mating roosts and also use transitional roosting sites. Autumn is the time when both adults and juveniles have to build up fat reserves in preparation for hibernation through the winter months.

Bats also use roosts during the night as feeding perches. Species that catch large prey items such as moths (*e.g.* brown long-eared bat) often enter buildings to hang up and eat their prey before emerging again to forage. Such feeding perches tend to be obvious from scatterings of bat droppings with moth wings, which the bats discard.

Bats are at their most vulnerable during the summer in their maternity roosts, when disturbance can jeopardise their breeding success. Bats give birth to only one pup per year and young do not breed until the second or third year after birth. This means that if maternity colonies are disturbed there can be serious implications for the conservation status of populations.

Bats are also vulnerable during the winter hibernation period, when disturbance can reduce their chance of survival through the winter at a time when food is in short supply.

This is why there are often only narrow timeframes for bat survey and mitigation work.

These are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

11.1 Lawn seed mix composition

The seed mixes in *Table 11.1.1.* are from Emorsgate Seeds and are suitable for lawns. Emorsgate are only given as an example and a local supplier is preferable. The mixes contain slow growing grasses, some with a selection of wildflowers that respond well to regular short mowing. The EG9 grass mixture for hedges and woodland contains a selection of grasses that are tolerant of a degree of shade.

Table 11.1.1. Emorsgate seed mix species composition.

EL1	
Species	Common Name
Flowering Species	
<i>Galium verum</i>	Lady's Bedstraw
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lotus corniculatus</i>	Birdsfoot Trefoil
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Trifolium pratense</i>	Wild Red Clover
Grasses	
<i>Agrostis capillaris</i>	Common Bent
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Festuca rubra</i>	Slender-creeping Red-fescue
<i>Phleum bertolonii</i>	Smaller Cat's-tail
EG1	
Species	Common Name
<i>Agrostis capillaris</i>	Common Bent
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Festuca rubra</i>	Slender-creeping Red-fescue
<i>Phleum bertolonii</i>	Smaller Cat's-tail
<i>Poa pratensis</i>	Smooth-stalked Meadow-grass
EG9	
Species	Common Name
<i>Agrostis capillaris</i>	Common Bent
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Brachypodium sylvaticum</i>	False Brome
<i>Cynosurus cristatus</i>	Crested Dogtail

<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Festuca rubra</i>	Red Fescue
<i>Poa nemoralis</i>	Wood Meadow-grass

11.2 Ornamental planting to attract wildlife

Plants that attract insects are generally helpful and trees, shrubs and flowering plants can provide cover for wildlife. Therefore, to enhance the ecological value of the site, any replacement landscaping in the gardens should incorporate a mixture of native and non-native species of value to wildlife. This mixture will be planted to encourage a diversity of insects, which in turn will attract different species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are beneficial. Night-flowering blossoms attract night-flying insects, which in turn provide prey for bats. Examples of suitable plant species that could be planted to encourage wildlife include those in Tables 11.2.1. and 11.2.2. Approximate flowering periods are listed in the tables.

Table 11.2.1. Native and non-native species that could be incorporated into the landscaping.

Species	Common Name	Approximate flowering period
<i>Achillea millefolium</i>	Yarrow	Early summer
<i>Aubretia</i> species	Aubretia	Spring to early summer
<i>Berberis darwinii</i>	Darwin's Barberry	Spring
<i>Iberis sempervirens</i>	Candytuft	Summer to autumn
<i>Centaurea montana</i>	Cornflower	Spring to summer
<i>Centaurea scabiosa</i>	Knapweed	Summer to autumn
<i>Centranthus ruber</i>	Red valerian	Summer to autumn
<i>Cornus sanguinea</i>	Dogwood	Summer
<i>Dianthus barbatus</i>	Sweet William	Summer
<i>Echinacea</i> species	Echinacea	Summer to autumn
<i>Erysimum</i> species	Wallflowers	Spring to early summer
<i>Glebionis segetum</i>	Corn marigold	Spring to summer
<i>Hebe</i> species	Hebes	Summer to autumn
<i>Hedera helix</i>	Ivy	Autumn
<i>Hesperis matronalis</i>	Dame's-violet	Spring to summer
<i>Hyacinthoides non-scripta</i>	English Bluebell	Spring
<i>Hylotelephium spectabile</i>	Ice plant 'Pink lady'	Early autumn
<i>Hypericum</i> species	St John's wort	Spring
<i>Ilex aquifolium</i>	Holly	Spring to summer
<i>Jasminum officinale</i>	Common White Jasmine	Summer to autumn
<i>Lavandula angustifolia</i>	Garden Lavender	Summer
<i>Leucanthemum vulgare</i>	Ox-eye daisy	Summer
<i>Limnanthes douglasii</i>	Poached egg plant	Summer
<i>Lonicera caprifolium</i>	Perfoliate Honeysuckle	Summer
<i>Lonicera etrusca</i>	Italian Honeysuckle	Summer to autumn
<i>Lonicera japonica</i>	Japanese Honeysuckle	Spring

<i>Lonicera periclymenum</i>	Honeysuckle	Summer to autumn
<i>Lunaria annua</i>	Honesty	Spring
<i>Malus domestica</i>	Apple	Spring
<i>Malus sylvestris</i>	Crab Apple	Spring
<i>Malva species</i>	Mallow	Summer to autumn
<i>Matthiola longipetala</i>	Night-scented stock	Summer
<i>Myosotis sylvatica</i>	Wood forget-me-not	Spring
<i>Nicotiana species</i>	Tobacco plant	Summer
<i>Oenothera species</i>	Evening primroses	Summer to autumn
<i>Papaver rhoeas</i>	Corn poppy	Summer
<i>Phacelia species</i>	Phacelia	Summer to autumn
<i>Primula vulgaris</i>	Primrose	Spring
<i>Rosa species</i>	Rose	Summer
<i>Rubus fruticosus</i> agg.	Bramble	Spring to summer
<i>Saponaria officinalis</i>	Soapwort	Summer
<i>Saxifraga fortunei</i>	Cherry pie	Summer to autumn
<i>Scabiosa species</i>	Scabious	Summer
<i>Silene dioica</i>	Red campion	Spring
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn
<i>Silene vulgaris</i>	Bladder Campion	Summer
<i>Verbena species</i>	Vervain	Summer to autumn
<i>Viburnum lantana</i>	Wayfaring-tree	Spring to summer
<i>Viburnum opulus</i>	Guelder-rose	Summer

Table 11.2.2. Examples of suitable garden herbs that could be planted in and around the site to encourage wildlife.

Species	Common Name	Approximate flowering period
<i>Angelica species</i>	Angelica	Summer to autumn
<i>Borago officinalis</i>	Borage	Spring to early autumn
<i>Calendula officinalis</i>	English marigolds	Summer to autumn
<i>Foeniculum vulgare</i>	Fennel	Summer to early autumn
<i>Hesperis matronalis</i>	Dame's-violet, often sold as Sweet Rocket	Spring to summer
<i>Hyssopus officinalis</i>	Hyssop	Summer to early autumn
<i>Matthiola bicornis</i>	Night-scented Stock	Spring to autumn
<i>Melissa officinalis</i>	Lemon balm	Summer
<i>Monarda species</i>	Bergamot	Summer to early autumn
<i>Nicotiana species</i>	Tobacco-plant	Spring to autumn
<i>Oenothera species</i>	Evening-primroses	Summer
<i>Origanum vulgare</i>	Marjoram	Summer
<i>Rosmarinus officinalis</i>	Rosemary	Spring
<i>Saponaria officinalis</i>	Soapwort	Summer to autumn
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn

<i>Silene vulgaris</i>	Bladder Campion	Spring to summer
<i>Tanacetum parthenium</i>	Feverfew	Summer to early autumn
<i>Thymus</i> species	Thyme	Summer

11.3 Bird boxes

It is not advisable to place many boxes with identical dimensions, because individuals of the same species may not tolerate each other's presence, especially in built-up areas with limited food resources.

Table 11.3.1. Bird boxes with additional details on siting them to increase chances of occupancy.

Type/ example	Typical species	Height	Additional information
Vivara Pro WoodStone House Sparrow Nest Box  	House sparrows	$\geq 2\text{m}$	- Can either be incorporated into the build structure or mounted onto a building. - Should be fixed onto a sturdy building, not onto fences or garden sheds due to its weight. - Position away from windows. - Position out of direct sunlight (below eaves on the north elevation), especially if not built into the build structure.
Vivara Pro Barcelona WoodStone Open Nest Box 	Robins, wrens	$\leq 2\text{m}$	- Mount on a tree or large shrub - Conceal amongst foliage to keep well-hidden from predators.
WoodStone Swallow Nest Bowl (Plywood board mounted) 	Swallows	$\geq 2\text{m}$	- Mount within a building with an open door or window - Leave a distance of at least 6cm between the top of the nest and the ceiling.

Vivara Pro WoodStone House Martin Nest 	House martins	$\geq 5\text{m}$	- Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line. - Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest.
Integrated barn owl roost/ false dormer box 	Barn Owl	$\geq 3\text{m}$	- Integrated into the sloped roof ideally as a false dormer. - The base of the internal space must be flat and a least 45cm below the entrance hole. - There must be an easy-to-grip platform outside the hole for fledglings to stand. - The box must not allow owls access into the garage/ carport inside the building to prevent disturbance by human activity. - A closed access hatch into the box from inside the building is advised, to allow essential clearance of built up nest material or waste.
Barn Owl Trust Nest Box 	Barn Owl	$\geq 5\text{m}$	- Mounted on a 'telegraph style' pole. - Best positioned facing open grassland for foraging opportunities and away from the prevailing weather.

11.4 Insects

Insect boxes (hotels or towers) should be installed in a sunny location close to vegetation. Bee-friendly and insect friendly plants should be located nearby so that the bees and insects using the boxes have food. Lavender, honeysuckle and buddleia are all pollinator-friendly plants. The boxes suggested in *Table 11.4.1* (especially the BeePot planter) have been chosen so that they form an attractive feature as part of the landscaping. Solitary bees are non-aggressive and as such are suitable for gardens with pets and children.

Table 11.4.1. Examples of insect boxes that could be erected on site.

Type	Species	Height	Additional information
	Solitary bees	>1m from the ground	The Bee Brick should be positioned in a warm sunny spot, in a south-facing wall, with no vegetation in front of the holes
	Solitary bees	>1m from the ground	The BeePot should be positioned in a warm sunny spot, preferably on a south-facing wall, with no vegetation in front of the holes
	Butterflies, solitary bees, lacewings and ladybirds	>1m from the ground	The different sections of the Insect Tower have been designed to provide a habitat for a variety of insect species. Suitable for mounting on buildings, trees or fences.
	Solitary bees and a range of other insects	Between 0.75m and 1.5m above ground	The selected canes and the holes are the optimum size for solitary bees but other insects may overwinter in the nester.
	A wide range of insects	Between 0.75m and 1.5m above ground	Adding natural materials such as drilled canes, hollow stems or bark in the triangular spaces will encourage more insects to the hotel.
	A wide range of insects	>1m from the ground	Best placed near vegetation. Provides plenty of nooks and crannies for insects such as ladybirds, earwigs and lacewings.