

64 Satchell Lane,
Hamble-le-Rice,
Hampshire, SO31 4HL

Bat Survey Report

September 2022

Hampshire Ecological Services Ltd
Consultant Ecologists

E: enquiries@hantsecology.co.uk

W: www.hantsecology.co.uk

T: 0771 456 8361

Bat Survey Report
64 Satchell Lane, Hamble-le-Rice, Hampshire, SO31 4HL
for
Emma Scott

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Prepared by:	Rev 0
 HANNAH YATES Ecologist	12/09/22
First review & Technical QA by:	
 VICTORIA RUSSELL Principal Ecologist	15/09/22
Second review & Technical QA by:	
 JOHN POLAND Principal Ecologist	20/09/22

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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EXECUTIVE SUMMARY

1. This report provides details from bat surveys carried out by Hampshire Ecological Services Ltd for Emma Scott in connection with a proposal to construct a two-storey extension and make internal renovations at 64 Satchell Lane, Hamble-le-Rice, SO31 4HL (approximate Ordnance Survey Grid Reference SU 48248 07452). The site consists of a house with an attached garage and 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 buildings was carried out by ecologist Chloe Mockridge MSc on the 14th July 2022.
3. The house is a two-storey brick building with a pitched roof. Full details of the building are given in *Table 4.2.1.* in *Section 4.2.* Details of potential bat access points are illustrated in *Images 4.3.1.1 – 4.3.1.2.* However, no bats or evidence of bats was found during the survey and the building was assessed as having low bat roost suitability.
4. The trees in the garden provide some bat foraging habitat in the immediate vicinity of the buildings. These connect the site to areas of high-quality foraging habitat in the wider landscape such as areas of woodland and the River Hamble.
5. One bat activity survey was carried out on the 17th August. Details of the date of the survey, weather and personnel carrying out the survey is given in *Sections 3.2.1* and *3.2.2.*
6. No bats were seen emerging or re-entering the building during the activity survey. Therefore, the works can take place without further survey or constraints regarding bats (subject to any planning constraints).
7. A common pipistrelle, soprano pipistrelle, noctule and long-eared bats were observed flying in the vicinity of the building and foraging on the site, indicating the weather was suitable for bat activity. The full data from the survey is given in *Appendix C* and a plan showing the foraging and commuting bats (observations only) is given in *Figures 4* in *Section 6.*
8. 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 (particularly the trees), and security lights should operate on a timer, to avoid any negative impact on bats.
9. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission. Therefore, the following outline enhancements are proposed:
 - The extension will be enhanced for bats using one integrated bat box/bat brick (*e.g.* a HabibatTM Bat Box, an Istock 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.
- One swift box, such as Ibstock Eco-habitat or similar, will be installed on the exterior of the building. Swift boxes can be supplied and installed by Hampshire Swifts <https://www.hampshireswifts.co.uk> and a new soffit design is also available;
 - One 32mm hole bird box, such as a Vivara Pro Seville 32mm Woodstone Nest Box, suitable for blue tits and great tits will be attached to a tree in the garden; and
 - At least one insect box (brick, hotel or tower) will be installed in the garden. This should be 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. The boxes suggested in *Table 5.6.5.1* (especially the BeePot planter) have been chosen so that they form an attractive feature as part of the landscaping.
10. Other enhancements for wildlife that the owner may choose to employ are given in *Appendix D*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.
11. 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 elapse it may be advisable to conduct further survey work to obtain up-to-date information, thereby ensuring protected species compliance.
12. 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 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.
13. There have been four granted bat European Protected Species (EPS) licences within 2km of the site. Due to their close proximity, it is likely that the bats using the 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 bat surveys carried out by Hampshire Ecological Services Ltd for Emma Scott in connection with a proposal to construct a two-story extension and make internal renovations at 64 Satchell Lane (approximate Ordnance Survey Grid Reference SU 48248 07452). 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 with an attached garage and a large garden. The building surveyed is shown on the plan in *Figure 3 in Section 6*.

The site is on the east side of Satchell Lane, to the north of Hamble-le-Rice in Southampton. The immediate surroundings consist of residential housing and fields. In addition, the River Hamble is c.280m east of the site. In the wider landscape, there is a mosaic of housing, grassland, woodland and waterways until larger towns are reached to the north.

2.3 **Proposed activities**

This survey was carried out in connection with a proposal to construct a two-storey extension on the rear of the property and make internal renovations over both floors.

2.4 **Current planning status**

Planning permission is being applied for at this site.

2.5 **Objectives of the surveys and report**

The surveys 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. Subsequently, one bat activity survey was carried out. The aim was to identify if bats were present or likely to use the site for roosting.

The surveys 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 site plan;
 - *Figure 4* illustrates the bat activity recorded during the activity survey; and
 - *Figure 5* gives the indicative locations of the proposed enhancements measures for the site.
- *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;
- *Appendix C* gives the data from the bat activity survey; and
- *Appendix D* 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 Dates, times and weather**

An external and internal inspection of the building was conducted during the daytime on the 14th July 2022. The weather conditions during the survey were 22.3°C and dry with 0% cloud cover and a gentle breeze (Beaufort scale 3).

Subsequently, one bat activity survey was carried out on the 17th August 2022. The survey started at 20:08 (sunset 20:23) and finished at 21:53. The weather conditions during the survey were 19°C at the start and 17°C at the end and dry with 70% cloud cover and light air (Beaufort scale 1).

The activity survey commenced fifteen minutes before sunset and continued for an hour and a half after sunset (long after bats would have exited). The weather was suitable for bat emergence and foraging during the survey.

3.2.2 Personnel

The initial survey was carried out by Chloe Mockridge MSc who is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has over four years of post-qualification experience in ecological consultancy. She is experienced in undertaking roost surveys and is accredited under level 2 class bat licence 2015-17894-CLS-CLS.

The activity survey was carried out by Jackie Thompson MCIEEM, Andrew Lomas MSc, and Adam Rye. All surveyors are experienced in carrying out bat surveys using detectors.

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.

3.2.5 Activity survey

The bat activity survey followed standard survey protocol in *Bat Surveys – Good Practice Guidelines*, 3rd edition (Collins, 2016).

The surveyors were located with good views of the potential bat access points identified during the initial site visit. The timing of the visit, from early evening until after dark was aimed at detecting active bats in the vicinity. When it was too dark for visual observation, electronic bat detectors were used to listen for the ultrasonic sounds produced by bats either flying in the vicinity or emerging from the building. Surveyors were also equipped with a Pulsar Axion XQ38 thermal imager to supplement observations when light levels were too low for human eyesight. This detects heat and is more effective than standard night-vision equipment.

The surveyors recorded all bat activity encountered, but particular attention was focused on any bats emerging or re-entering. The results were documented by noting the time, bat species and behaviour (*e.g.* commuting, foraging, social interaction *etc.*). The surveyors were in constant contact via hand-held radios so that information could be easily exchanged regarding bat activity. The time between all surveyors' devices was synchronised so time data was recorded precisely.

Bat detectors are used so that surveyors can identify most bat species in the field, using the heterodyne output in combination with bat shape, flight pattern and behaviour. Surveyors were equipped with Echo Meter Touch™ detectors for real-time analysis and BatBox Duet™ detectors connected to solid-state recorders (Edirol Roland-05) to record bat calls for later sonogram analysis using BatSound™ computer software (should it be required). Frequency-division, whereby the ultrasound is divided by 10 into an audible range, has a considerable advantage over time-expansion for survey work as it allows recordings to be taken in real time. This ensures that all bat activity is recorded.

Queried recordings were later replayed and analysed through BatSound™ software to ensure that any activity accidentally missed during the survey was recorded and times and location calculated. The species of bat was confirmed at this stage where possible. Bat detector surveys provide one of the most effective methods of identifying bat species and activity patterns. However, it is not always possible to identify bats down to species level, even with subsequent sound analysis.

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 not designated or immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby. 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.

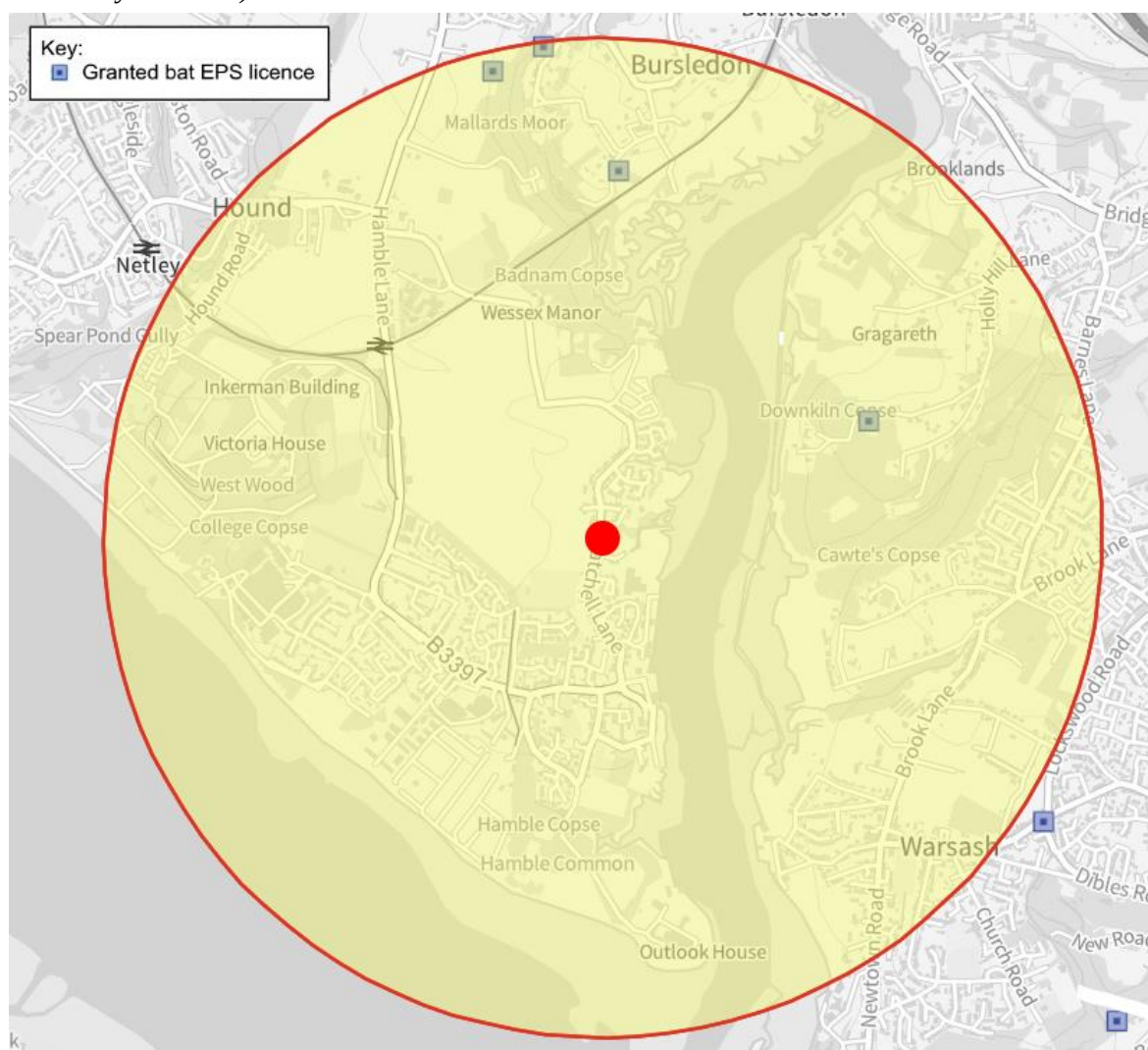
Level of designation	Designation	Name	Distance & direction from site
International	SPA	Solent & Southampton Water	c.210m east
	Ramsar	Solent & Southampton Water	c.210m east
	SAC	Solent Maritime	c.210m east
National	SSSI	Lee-on-The Solent to Itchen Estuary	c.210m east
		Lincegrove and Hackett's Marshes	c.865m north
	NNR	-	-
County	LNR	Mercury Marshes	c.265m north-east
		Hook With Warsash	c.505m east
		Holly Hill Woodland Park	c.890m east
		Hackett's Marsh	c.1,415m north
Local	SINC	Long Ground Copse	c.205m east
	Ancient woodland	-	-

4.1.2 Bats

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been four 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
Brown long-eared, Common pipistrelle, Soprano pipistrelle	Resting place	23/11/2016	c.1,170m north-east
Common pipistrelle	Resting place	10/10/2017	c.1,445m north
Common pipistrelle	Resting place	02/09/2014	c.1,930m north
Common pipistrelle	Resting place	01/08/2019	c.1,975m north

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 showing the garden are given in Section 7.

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

Type/Name	64 Satchell Lane
Description	A two-storey brick building with a pitched, tiled roof. There are two flat-roofed extensions on the east elevation and a flat-roofed garage on the south elevation.
No. of storeys	2
Roof type	Pitched and flat-roofed
Roof cladding	Tile
Ridge	Tile
Wall type	Brick
Exterior	Lead-flashing, bargeboards, soffits
Photos	North elevation 
	East elevation 
	South elevation 

	West elevation 
Building dimensions	c.8.5m wide x c.15m long
Roof void description	Cluttered and floor lined with fibreglass insulation and wooden boards
Frame	Wooden beams and ridge beam
Roof lining	Bitumen roofing felt on the south side of the roof, the rest is unlined
Roof void dimensions	c.8.5m wide x c.15m long 
Roof void height	c.2.5m

Potential roosting locations	Against the ridge beam  Within the brickwork where there is missing mortar. 
Bat evidence	None
Bat suitability	Low

4.3 *External potential bat access points*

The majority of the roof appears well-sealed and in good condition. However, there are some potential bat access points into the main roof void, as well as some exterior features that also provide potential roosting locations for bats. The locations and details these are illustrated in *Images 4.3.1.1 – 4.3.1.2*.

The building is classed as having low suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

Image 4.3.1.1. Location of potential bat access points and potential external roost locations on the east elevation of the building.



Image 4.3.1.2. Location of potential bat access points and potential external roost locations on the west elevation of the building.



4.4 *Commuting and foraging habitat*

The trees in the rear garden provide some bat foraging habitat in the immediate vicinity of the buildings. These connect to a network of trees and hedges in the neighbouring gardens, which in turn link the site to areas with high-quality foraging habitat in the wider landscape such as woodlands and the nearby River Hamble.

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*

No bats or evidence of bats was found.

4.6 *Bat activity survey*

No bats were observed emerging from or re-entering the house.

Common pipistrelles, soprano pipistrelle, noctule and long-eared bats were recorded flying in the vicinity of the building and on the site indicating the weather was suitable for bat activity. The full data from the activity survey is given in *Appendix C* and a plan illustrating the bat activity (observations only) during the survey is given in *Figure 4* in *Section 6*.

4.7 *Other ecological constraints*

4.7.1 *Schedule 9 species*

Two non-native, invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) were recorded on the site. These are:

- *Cotoneaster horizontalis* (Wall Cotoneaster) by the steps leading into the rear garden; and
- *Crocsmia* × *crocsmiiflora* (Montbretia) on the north boundary in the rear garden.

4.7.2 *Birds*

The hedges and trees on the boundaries provide suitable nesting habitat for 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).

Evidence of crevice-dwelling bats, such as pipistrelles, is often not discovered on preliminary roost appraisals.

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.

As no bats were seen emerging and/ or re-entering the building, no mitigation or compensation measures are needed for bats.

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

5.2.1 *Desk study*

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 designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by these works and all links will be maintained.

The site is within 5km of Solent & Southampton Water SPA (c.210m east) and Solent Maritime SAC (c.210m east). The SAC is designated due to the internationally important habitats it encompasses and the SPA is designated due to the internationally important species of birds it provides habitat for. As a result of its proximity, the impacts of these works on the SPA and SAC must be considered.

The works will cause a small increase to the building size but not the number of people occupying the building, as the house is a residential property and is staying under the same ownership. Therefore, there will be no increase in the recreational pressure, or pollution, on the internationally designated sites.

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been four bat European Protected Species (EPS) licences granted within 2km of the site, with the closest c.1,170m north-east of the site. Due to their close proximity,

it is possible that the bats using the 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*

The trees in the rear garden provide some bat foraging habitat in the immediate vicinity of the buildings. These connect to a network of trees and hedges in the neighbouring gardens, which in turn link the site to areas with high-quality foraging habitat in the wider landscape such as woodlands and the nearby River Hamble. Woodland and rivers provide high-quality foraging habitat for a number of different species of bat. These areas will be unaffected by the development and all links will be maintained. The connectivity around the edges of the site (the trees and hedges) 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 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 (particularly the trees) and security lights should operate on a timer, to avoid any negative impact on bats.

Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) onto any retained vegetation. This is because bats (particularly long-eared bats) are very sensitive to light.

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*

The building has low bat roost suitability and no bats or evidence of bats was seen during the surveys. Therefore, the works can take place without further survey or constraints regarding bats (subject to any planning constraints).

Enhancement measures will be required to be incorporated into the building and/ or wider site to comply with national and local planning policy that requires a net gain in biodiversity. The proposed enhancement measures are given in Section 5.5.

5.2.4 *Schedule 9 species*

Two non-native invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) were recorded on the site. These are:

- *Cotoneaster horizontalis* (Wall Cotoneaster) by the step leading into the rear garden; and
- *Crocsmia* × *crocsmiiflora* (Montbretia) on the north boundary in the rear garden.

It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause any species listed on *Schedule 9* to spread in the wild. Therefore, ideally these should be removed to avoid spreading

to the remainder of the site or off-site during site works, especially where they are close to or in the area of work. However, they are also common ornamental plants and where they are located away from the works, such as in the rear garden, they could remain *in situ* with the areas fenced off for the duration of the works. This will prevent machinery or tools or boots accidentally spreading them on site or carrying them off site.

Cotoneaster horizontalis (Wall cotoneaster) is mostly spread by berries, which may be retained for much of the following year. It can also potentially spread via cuttings and can re-sprout from cut stumps and shallow roots. There are various options for its removal including hand-pulling, physical cutting, excavation (hand tools or mechanical), and herbicide application.

Crocsmia × *crocsmiiflora* (Montbretia) primarily spreads via corms and rhizomes. Rhizome fragments only require a small fragment with a single corm (food source) to grow. Therefore, it can create new colonies elsewhere if broken and moved in contaminated soil. If undisturbed it can form dense stands which can cover large areas. This shades out and outcompetes native plants.

Information of the removal of the *Schedule 9* species (should the owners need or choose to do so) is given in *Section 5.5.3*.

5.2.5 *Birds*

All trees provide suitable habitat for nesting birds. The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). Due to the location of the extension, it is not anticipated any of the vegetation will be affected.

However, if vegetation with the potential to support nesting birds needs to be removed, it should be cut to near ground level (approximately 30cm) outside the bird breeding season (which is late February to August inclusive). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation. If any active nests are found prior to or during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use).

5.3 *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 elapse it may be advisable to conduct further survey work to obtain up-to-date information to advise work, thereby ensuring protected species compliance.

Given the mobility of bats, it is recommended that a walkover of the site to update the survey information is undertaken prior to the development commencing if this does not occur before the end of September 2023.

5.4 **Further survey**

No further surveys are proposed.

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

5.5.1 *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 February 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:

- sensitive lighting (for bats and other wildlife);
- removing *Schedule 9* species, where required;
- new bat roost locations;
- new bird nesting provision; and
- insect boxes.

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 D*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

All proposed enhancement measures are subject to supplied plans.

5.5.2 Lighting

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 new and retained vegetation (particularly the trees) and any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) near to or directly onto the new or retained roost entrances and 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.

5.5.3 Schedule 9 species

General

To comply with the law, the *Schedule 9* species listed in *Section 5.2.4* will be controlled and eradicated so not to cause the plant to spread on this or other sites as a result of earth moving, soil/rubble removal or other operations. Otherwise, they will be fenced off for the duration of the works.

Cotoneaster horizontalis (Wall Cotoneaster)

The *Cotoneaster horizontalis* (Wall Cotoneaster) plants on site are mature (berry bearing) and therefore, a combination of methods will be used - cutting them down to stumps and then either

digging them out or treating the stumps with herbicide during winter (November to February). The cut material will be placed on plastic sheeting to dry and burn to ash on site or will be disposed for incineration or disposed to a suitably licensed waste-disposal facility. This may be done in advance of planning or as part of site preparation works prior to clearance and demolition. If herbicide is used then an appropriately qualified worker and/ or contractor will be used. A suitably qualified ecologist will identify the plants to the contractors as needed.

Crocasmia × crocosmiflora (Montbretia)

For the removal of *Crocasmia × crocosmiflora* (Montbretia), two main options exist; mechanical removal and chemical treatment. The options depend on the timescale of the works. Herbicide treatment must be completed by appropriately qualified contractors and should take place prior to any earth-moving operations.

Alternatively (especially if there is a short timescale), then the plant and soil containing corms and rhizomes can be scraped down to a minimum of 50cm. In addition, 2-3m of soil around the visible area must be removed. Any soil which contains this species is classed as controlled waste and must be disposed of appropriately. It will be disposed of in one of the following ways:

- in landfill as controlled waste;
- buried on site at a depth of 2m; or
- used to form a bund on site, where it can be treated with herbicide or buried.

5.5.4 *New bat roost locations*

The new extension will be enhanced for bats using at least one bat brick (*e.g.* a Habibat™ Bat Box, an Istock 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.

5.5.5 *Birds*

The site will be enhanced for birds. One swift box will be built into or attached to the walls of the extension. Swift boxes can be supplied and installed by Hampshire Swifts <https://www.hampshireswifts.co.uk> and a new soffit or bespoke designs are 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 5.5.5.1*.

Table 5.5.5.1 Examples of bird boxes that could be erected on site.

Type	Typical species	Height	Additional information
Ibstock Eco-habitat 	Swifts	≥ 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

or Swift boxes from Hampshire Swifts 			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.
Vivara Pro Seville 32mm Woodstone Nest Box 	Blue tits, great tits	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.

5.5.6 *Insects*

At least one insect box (hotel or tower) will be installed in the garden (or built into the exterior of the extension). This should be 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 5.5.6.1* (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 5.5.6.1. Examples of insect boxes that could be erected on site.

Type	Species	No.	Height	Additional information
	Solitary bees	2	>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	2	>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	2	>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	2	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	2	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	2	>1m from the ground	Best placed near vegetation. Provides plenty of nooks and crannies for insects such as ladybirds, earwigs and lacewings.

5.6 ***Requirement for Habitats Regulations 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 not necessary before work commences on the building. In the unlikely event that bats are found during the works, work will stop immediately, and a bat licence will be applied for.

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, if 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 and a Method Statement. This includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

It is not possible to apply for a 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.

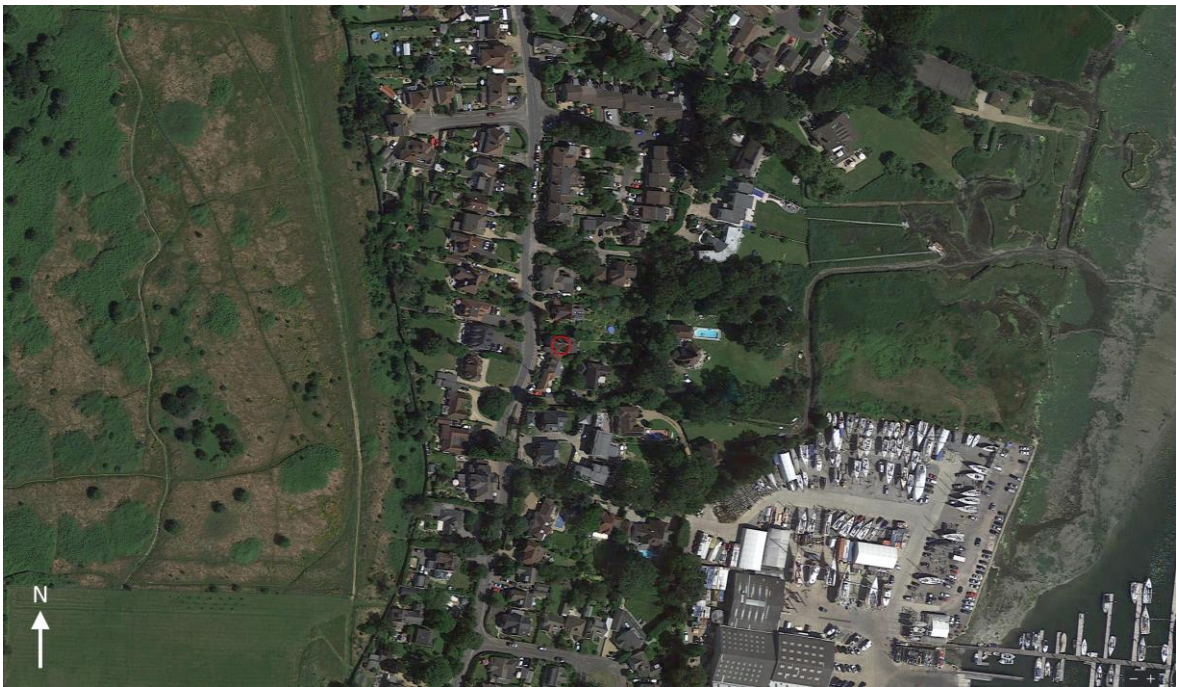


Figure 2. An Ordnance Survey map showing the site location, as indicated by the red arrow.



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

Figure 3. Plan of the site with the building surveyed highlighted in red the indicative locations of ecological constraints (not to scale).

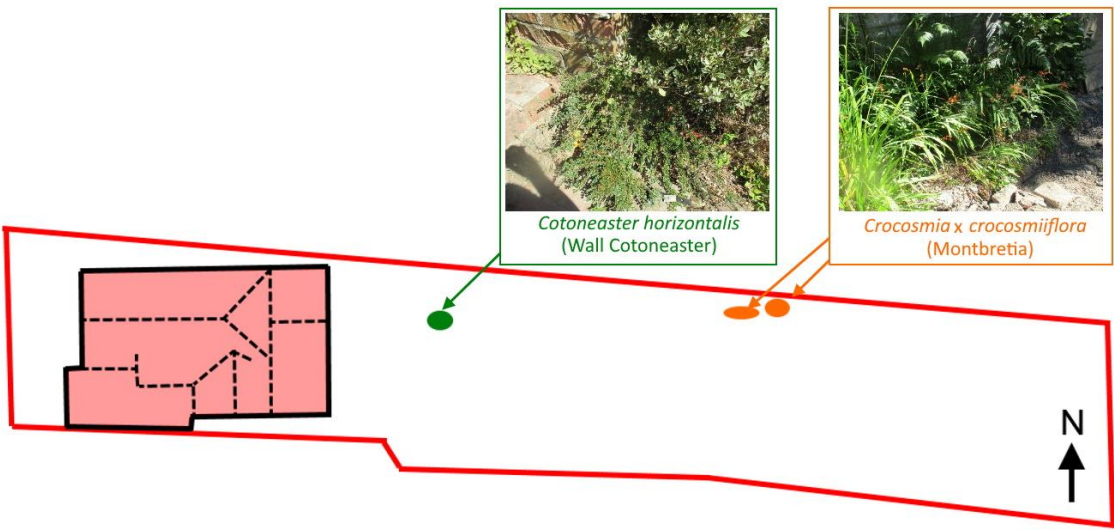


Figure 4. Plan showing bat activity (observations only) for the dusk emergence survey carried out on the 17th August 2022. Arrows show direction of flight (where known).

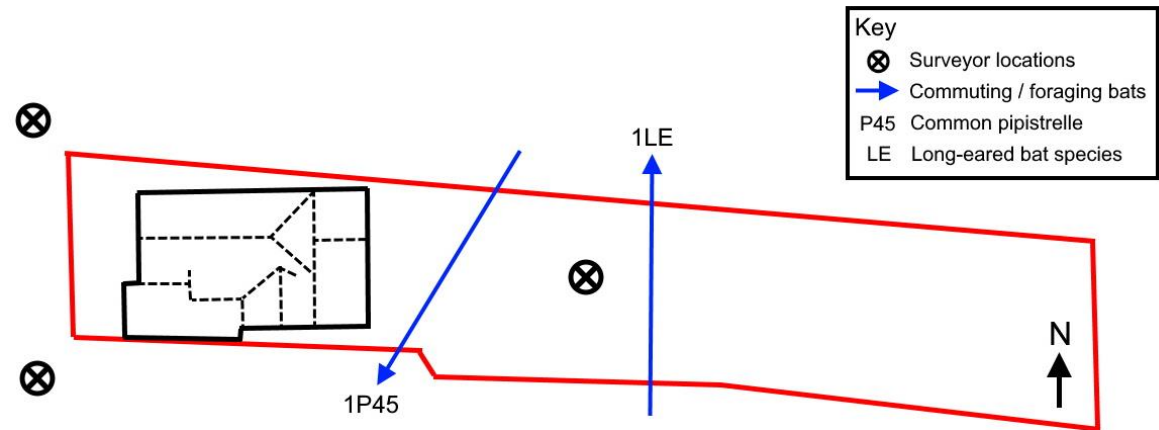
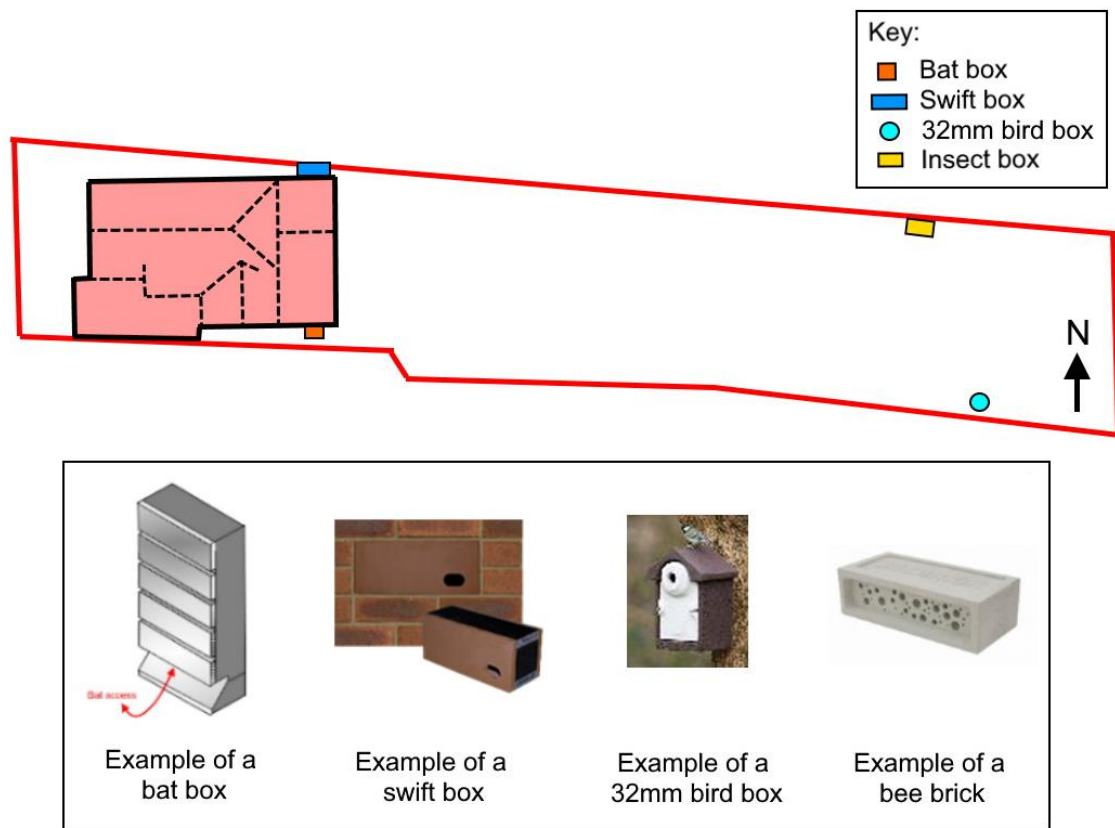


Figure 5. Plan showing the proposed enhancement measures to provide biodiversity net gain (not to scale).



7 PHOTOGRAPHS

Photo 1. Lawn and ornamental planting in the rear garden (facing east).



Photo 2. The outbuilding at the bottom of the rear garden (facing east).



Photo 3. Satchell Lane (facing north).



Photo 4. The rear garden (facing west).



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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 20th July 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.

APPENDIX C: DUSK EMERGENCE SURVEY DATA

Date	17/08/2022			
Temp	19°C at start and 17°C at the end			
Weather	Dry with 70% cloud cover and light air (Beaufort scale 1)			
Ecologists	Andrew Lomas, Jackie Thompson & Adam Rye			
Observer	Time	No.	Species	Observation
-	20:08		-	Ecologists commenced observations
-	20:23		-	Sunset
AR	20:41	1	Common pipistrelle	Heard but not seen
AL	20:42	1	Common pipistrelle	Heard but not seen
AL	20:45	1	Common pipistrelle	Heard briefly but not seen
JT	20:47	1	Noctule	Heard but not seen
AL	20:48	1	Common pipistrelle	Commuting south-west over the garden steps on the east side of the house
JT	20:52	1	Noctule	Heard but not seen
JT	20:56	1	Noctule	Heard but not seen
AR	21:09	1	Noctule	Heard but not seen
JT	21:30	1	Common pipistrelle	Heard but not seen
AL	21:31	1	Long-eared species	Commuting north over the back garden
AR	21:38	1	Noctule	Heard but not seen
AR	21:39	1	Soprano pipistrelle	Heard but not seen
JT	21:42	1	Noctule	Heard but not seen
-	21:53	-	-	Ecologists ceased observations

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

12.1 Seed mix composition

The seed mixes in *Table 12.1.1.* 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 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 12.1.1. 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

12.2 *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 12.2.1. and 12.2.2. Approximate flowering periods are listed in the tables.

Table 12.2.1. 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 12.2.2. 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

12.3 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 12.3.1. Bird boxes with additional details on siting them to increase chances of occupancy.

Type	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 Seville 28mm Woodstone Nest Box 	Blue tits, coal tits	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.
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.
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.