56 Merdon Avenue, Chandler's Ford, Eastleigh, Hampshire, SO53 1GF

Preliminary Roost Assessment Report

August 2024

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Preliminary Roost Assessment Report

56 Merdon Avenue, Chandler's Ford, Eastleigh, Hampshire, SO53 1GF

for

Mr & Mrs Cooper

Reference: 56 Merdon Avenue, Chandler's Ford	
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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.

The author disclaims any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and the author accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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1 EXECUTIVE SUMMARY

1. This report provides details from a preliminary roost assessment survey carried out by Hampshire Ecological Services Ltd for Mr & Mrs Cooper in connection with a proposal to construct a two-storey front extension with a new porch, a first floor side extension, single storey side and rear extensions with a rear balcony, make alterations to the fenestration, and create new vehicular access to the existing driveway at 56 Merdon Avenue, Chandler's Ford, Eastleigh, Hampshire, SO53 1GF (approximate Ordnance Survey Grid Reference SU435215). The site consists of a two-storey house with an integrated garage, a front driveway and a rear garden. The location of the site is shown in *Figures 1* and *2* and a plan of the building surveyed are shown in *Figure 3* in *Section 6*.

2. An internal and external survey of the building was carried out by Sophie Stirrat ACIEEM accredited under bat licence 2015-17894-CLS-CLS on the 2nd August 2024.

3. The house is two-storey building with a pitched, tiled roof. There is an extension on the north-east elevation, which has a flat roof. Full details of the building are given in *Table 4.2.1* in *Section 4.2*. No bats or evidence of bats was found during the survey. Due to the presence of very few suitable roosting features on the building, it is classed as negligible bat roost suitability where negligible is defined in *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th edition* (Collins, 2023)) as: "*so small or unimportant as to be not worth considering, insignificant. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute)*. Details are illustrated in *Images 4.3.1.1 – 4.3.1.3*. Therefore, in line with Gov.uk *Bats: surveys and mitigation for development projects* and BCT's *Bat Surveys for Professional Ecologists Good Practice Guidelines 4th edition*, no further surveys are considered necessary.

4. However, to ensure protected species compliance, it is highly recommended that the porch roof tiles and corrugated roof should be removed under precautionary ecological supervision. This will mitigate the potential for individual bats to be injured or killed in the unlikely event that roosting bats are present under these structures. A mitigation licence from Natural England would need to be obtained to continue works.

5. There are mature trees just beyond the site boundary providing limited sheltered bat foraging habitat in the immediate vicinity of the building. The lines of trees just beyond the east and south boundaries connect a network of hedges, tree-lines and woodland strips, which in turn connect the site to areas of high-quality foraging habitat in the wider landscape such as nearby Hiltingbury lakes (*c*.450m north-east). The connectivity around the edges of the site and just beyond the boundaries (the trees, hedges and shrubs) will be retained and as such no impact to commuting and foraging bats (and hence bat populations in the local area) is anticipated.

6. 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 any vegetation (particularly the surrounding mature 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 vegetation. However, it is in a highly lit area and as such this may not be possible due to existing light spill. If this is the case any new lighting should not increase the level currently experienced and, if at all possible, should reduce any light spill due to the type of lighting used and the use of protection such as hoods and cowls. 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.

7. All of the trees, shrubs and hedges provide suitable habitat for nesting birds. No vegetation is currently proposed to be removed. Should this change, any affected vegetation with the potential to support nesting birds should be cut to near ground level (approximately 30cm) outside the bird breeding season (which is late February to August inclusive). The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). 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 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).

8. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission in order to provide a net gain in biodiversity. Therefore, the following enhancement measures are proposed:
   - The building will be enhanced for bats using 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;
   - A 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 (this box is also suitable for house sparrows which are also an IUCN Red List Bird of Conservation Concern and listed on Section 41 of the Natural Environment & Rural Communities Act 2006); and
   - 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 one of the mature trees in the rear garden (or attached to the exterior wall of the building).

9. The bird boxes to be erected within the site, with additional details on siting them to increase chances of occupancy, are summarised in *Table 5.6.5.1* and the proposed enhancement measures are shown in *Figures 4 - 6* in *Section 6*.

10. 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.

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 this small-scale development and all links will be maintained.

13. The site is within 5km of the River Itchen and Emer Bog SPAs. As a result of its proximity to these designated sites, the impacts of these small-scale workd on the SPAs must be considered. The works will cause an increase to the building size but not to 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 nearby internationally designated sites.

14. According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), 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 any bats using the site would be 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 a preliminary roost assessment survey carried out by Hampshire Ecological Services Ltd for Mr & Mrs Cooper in connection with a proposal to construct a two-storey front extension with a new porch, a first floor side extension, single storey side and rear extensions with a rear balcony, make alterations to the fenestration, and create new vehicular access to the existing driveway at 56 Merdon Avenue, Chandler's Ford, Eastleigh, Hampshire, SO53 1GF (approximate Ordnance Survey Grid Reference SU435215). The location of the site is shown in *Figures 1* and *2* and a plan of the building surveyed are shown in *Figure 3* in *Section 6*.

2.2 Site description

The site consists of a house with an integrated garage as well as a detached carport with a converted loft space. There are also front and rear gardens. The gardens are mainly amenity grassland (lawns) with a variety of trees, hedges and ornamental planting along the boundaries. The buildings surveyed are shown on the plan in *Figure 3* in *Section 6*.

The site is on the north side of Merdon Avenue, on the northern side of Chandler's Ford. The immediate surroundings consist of residential housing in all directions. The gardens of the surrounding properties are all connected by tree-lines and hedge-lines, which in turn connect the site to small patches of woodland and waterways in the immediate vicinity of the site such as Hiltingbury Lakes (*c*.450m north-east). In the wider landscape, beyond the housing estates of Chandler's Ford, agricultural land and grassland dominate the landscape together with fragmented patches of woodland and private dwellings/ farms. This land usage continues until larger towns are reached such as Southampton to the south and Winchester to the north. In addition, The River Itchen is located *c*.2451m to the east.

2.3 Proposed activities

This survey was carried out in connection with a proposal to carry out the following works:

- construct a two-storey front extension with a new porch;
- construct a first-floor side extension and single storey side and rear extensions with a rear balcony;
- make alterations to the fenestration; and
- create new vehicular access to the existing driveway.

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, 4th edition* (Collins, 2023). 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 showing the building surveyed; and
  - *Figures 4 - 6* give 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).

3 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 carried out during the daytime on the 2nd August 2024. The weather conditions during the survey were 19°C and dry with 0% cloud cover and no wind (Beaufort scale 0).

3.2.2 Personnel

The internal and external inspections were carried out by Sophie Stirrat ACIEEM who is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She is experienced in undertaking bat roost surveys and is accredited under Bat Class Licence Registration number 2015-17894-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 23 years of experience in ecological consultancy and Victoria Russell MCIEEM who is also a full member of the CIEEM and multi-species licence holder with over 25 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. 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, 2023).

Table 3.2.4.1. Bat Roost Suitability.

Suitability	**Description of roosting habitats**	**Description of commuting and foraging habitats**
None	No habitat features on site likely to be used by any roosting bats at any time of the year (*i.e.* a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).
Negligible*	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. 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.e.* unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, *i.e.* 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, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths, 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.

Suitability	Description of roosting habitats	Description of commuting and foraging habitats
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. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths 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. Site is close to and connected to known roosts.
*Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).		

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 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	-	-
	Ramsar	-	-
	SAC	River Itchen	*c.*2282m south-east
		Emer Bog	*c.*3396m west
National	SSSI	Trodds Copse	*c.*1628m north-west
	NNR	-	-
County	LNR	Hocombe Mead	*c.*1072m north-west
		Valley Park Woodlands	*c.*1544m south-west
Local	SINC	-	-
	Ancient woodland	-	-

4.1.2 Bats

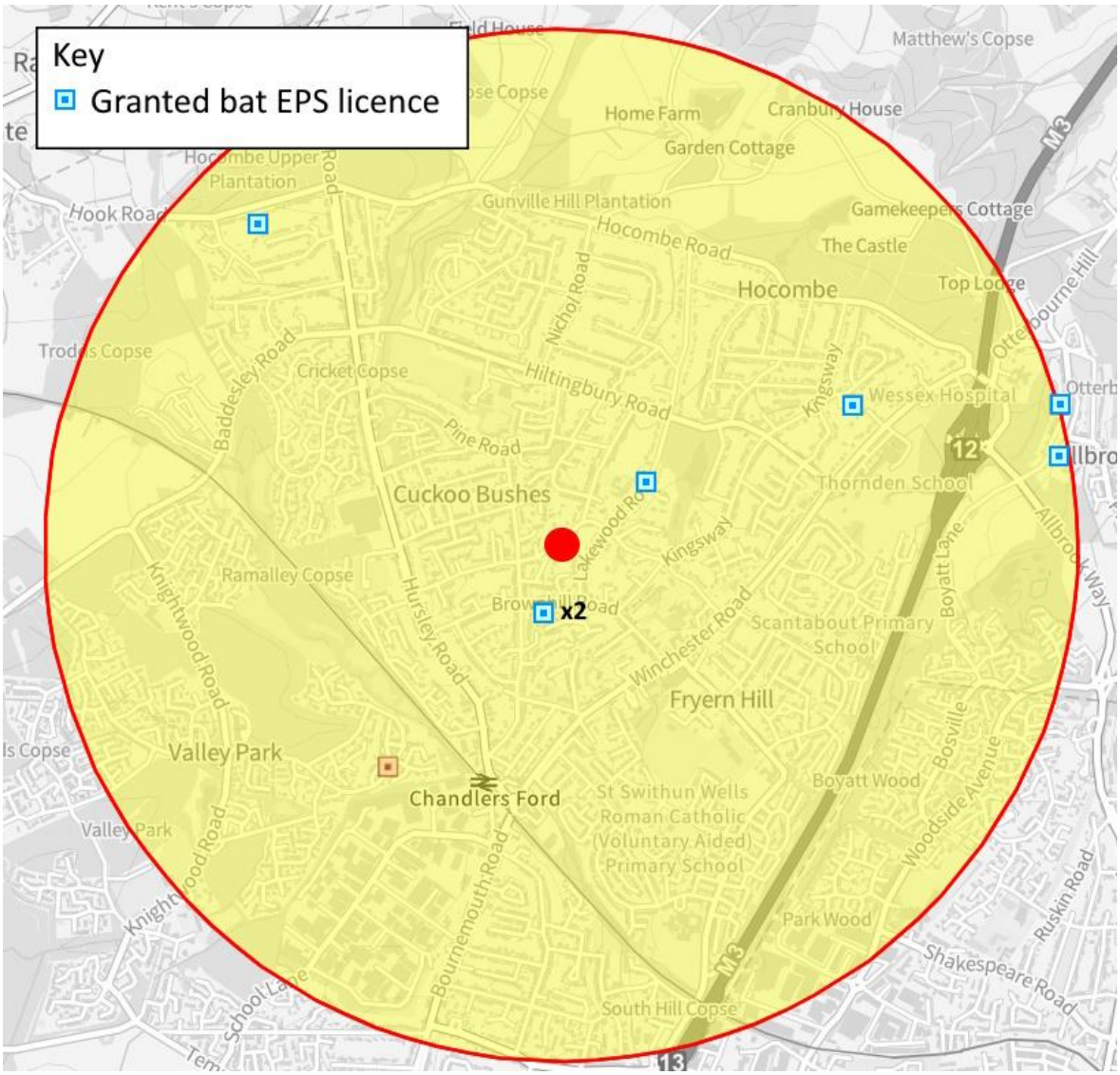
According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been seven bat European Protected Species (EPS) licences granted within 2km of the site. These are listed in *Table 4.1.2.1* and their locations are shown in *Figure 4.1.2.1*.

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, soprano pipistrelle, brown long-eared bat	Resting place	27/04/2017	*c.*1995m north-west
Brown long-eared bat	Resting place	16/04/2018	*c.*1699m north-west
Common pipistrelle, soprano pipistrelle, brown long-eared bat, serotine	Resting place	22/03/2017	*c.*258m south-
	Unknown	04/01/2018	
Common pipistrelle, soprano pipistrelle	Resting place	01/03/2016	*c.*1263m north-east

Soprano pipistrelle	Resting place	02/01/2021	*c.*424m north-east
Common pipistrelle, soprano pipistrelle, brown long-eared bat, Natterer's	Resting place & breeding site	17/04/2012	*c.*1961m 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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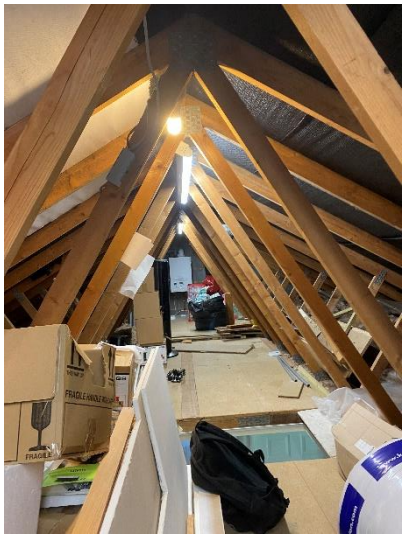
4.2 *Survey of buildings*

The construction details and photographs of the building are summarised in *Table 4.2.1*. Additional photographs showing the garden and nearby mature trees are given in *Section 7*.

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

Type/Name	**House**
Description	A two-storey brick building with a pitched, tiled roof. There is a flat roof extension on the north-east elevation.
No. of storeys	2

Roof type	Pitched
Roof cladding	Tile
Ridge	Tile
Wall type	Brick
Exterior	Single-storey extension (north-east and south-west elevations)
Photos	North-west elevation
	North-east elevation
	South-east elevation

Photos cont.	South-west elevation
Building dimensions	*c.*18m wide x *c.*7m long
Roof void description	Cluttered due to its construction from trusses
Frame	Wooden rafters but no visible ridge beam
Roof lining	Bitumen roofing felt
Roof void dimensions	*c.*7m wide x *c.*10m long 
Roof void height	*c.*1.8m
Potential roosting locations	The bitumen roofing felt has ripped in some places and could allow bats access into the roof void.

Bat evidence	No
Bat suitability	**Negligible**
Further surveys needed?	No

4.3 Potential external roost locations

The majority of the roof appears well-sealed and in good condition with no obvious access into the roof void. There are exterior features that provide potential roosting locations for bats. Therefore, the building is classed as having negligible suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1.*

The locations and details of the potential exterior roosting features are illustrated in *Images 4.3.1. & 4.3.2.*

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

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

4.4 *Commuting and foraging habitat*

There are mature trees just beyond the site boundary providing limited sheltered bat foraging habitat in the immediate vicinity of the building. The lines of trees just beyond the east and south boundaries connect a network of hedges, tree-lines and woodland strips, which in turn connect the site to areas of high-quality foraging habitat in the wider landscape such as nearby Hiltingbury lakes (*c*.450m north-east). Therefore, the site has moderate commuting and foraging habitat, following the criteria in *Table 3.2.4.1*.

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 Other ecological constraints

4.6.1 Schedule 9 species

One non-native, invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site. This was *Crocosmia × crocosmiiflora* (Montbretia) (*Target Note 1*).

4.6.2 Birds

All hedges and shrubs on site 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.

It is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally legal, practical or acceptable.

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.

As the building has negligible bat roost suitability, no mitigation or compensation measures are needed.

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 small-scale works and all links will be maintained.

The site is within 5km of Emer Bog SAC (*c*.3396m west) and the River Itchen SAC (*c*.2282m south-east). The River Itchen SAC is designated because it is a watercourse with *Ranunculus fluitantis* as well as the presence otter and of several protected invertebrates, fish including southern damselfly, freshwater crayfish, brook lamprey, Atlantic salmon and bullhead. Emer Bog is designated due to the presence of transition mires and quaking bogs.

As a result of its proximity, the impacts of these small-scale works on the SACs must be considered.

The works will cause an increase to the building size but not to 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 seven bat European Protected Species (EPS) licences granted within 2km of the site. Due to their close proximity, it is likely that any bats using the site for commuting and/ or foraging 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 mature trees just beyond the site boundary providing limited sheltered bat foraging habitat in the immediate vicinity of the building. The lines of trees just beyond the east and south boundaries connect a network of hedges, tree-lines and woodland strips, which in turn connect the site to areas of high-quality foraging habitat in the wider landscape such as nearby Hiltingbury lakes (*c*.450m north-east). Woodland and waterways 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 and just beyond the boundaries (the trees, hedges and shrubs) 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 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 vegetation. However, it is in a highly lit area and as such this may not be possible due to existing light spill. If this is the case any new lighting should not increase the level currently experienced and, if at all possible, should reduce any light spill due to the type of lighting used and the use of protection such as hoods and cowls.

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 House

The roof is in good condition with no visible bat access points and no bats or evidence of bats was found. Therefore, this building was assessed as having negligible bat roost suitability. Therefore, works can take place without further survey or constraints regarding bats (subject to any planning constraints).

However, it is highly recommended that the porch roof tiles and corrugated roof should be removed under precautionary ecological supervision. In the unlikely event that roosting bats are present under these structures, this will mitigate the potential for individual bats to be injured or killed.

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 5.6*.

5.2.4 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.

5.3 Other ecological constraints

5.3.1 Schedule 9 species

One non-native, invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site. This was *Crocosmia ×crocosmiiflora* (Montbretia).

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 this should be removed to avoid spreading to the remainder of the site or off-site during site works, especially if it is close to or in the area of work. However, they are also common ornamental plants and where they are located away from the works, it 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.

Crocosmia × crocosmiiflora (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 5.6.4*.

5.3.2 Birds

All of the trees, shrubs and hedges provide suitable habitat for nesting birds. The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). No vegetation is currently proposed to be removed. Should this change, any affected vegetation with the potential to support nesting birds 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).

5.4 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 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 August 2025.

5.5 Further survey

No further surveys are proposed.

5.6 Enhancement measures

5.6.1 General

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG) (required since January 2024 and since April 2024 for small sites). BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside:

- a strengthened legal duty for public bodies to conserve and enhance biodiversity,
- new biodiversity reporting requirements for local authorities, and mandatory spatial strategies for nature: Local Nature Recovery Strategies or 'LNRS'.

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:

- removing *Schedule 9* species, where required;
- 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.

All proposed enhancement measures are subject to supplied plans.

5.6.2 New bat roost locations

The new extension will be enhanced for bats using at least one integrated bat box/ brick (*e.g.* a PRO UK Build-in WoodStone Bat Box, 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.

5.6.3 Lighting

Changes in lighting can affect roosting, 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 the new roost exit point (see *Section 5.6.2*) and any vegetation (particularly the trees just beyond the boundaries) and any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) near to or directly onto the new roost entrances and vegetation so that light disturbance is not a problem.

However, it is in a highly lit area and as such this may not be possible due to existing light spill. If this is the case any new lighting should not increase the level currently experienced and, if at all possible, should reduce any light spill due to the type of lighting used and the use of protection such as hoods and cowls.

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 2023)) 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 Schedule 9 species

General

To comply with the law, the *Schedule 9* species listed in *Section 5.3.1* 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.

Crocosmia × *crocosmiiflora* (Montbretia)

For the removal of *Crocosmia* × *crocosmiiflora* (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.

5.6.5 Birds

A swift box will be built into the exterior wall of the new house (or attached to the exterior wall). 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 which are also an IUCN Red List Bird of Conservation Concern and listed on Section 41 of the *Natural Environment & Rural Communities Act 2006*). In addition, a woodstone bird box suitable for use by blue tits and great tits will be attached to the exterior wall of the building.

These bird boxes will provide new nest sites. The bird boxes are detailed in *Table 5.6.5.1*.

Table 5.6.5.1. 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 or Swift boxes from Hampshire Swifts	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

A bat European Protected Species (EPS) licence or Bat Earned Recognition (BER) licence or Bat Mitigation Class (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 works, work will stop and a bat licence will be applied for. 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.

6 FIGURES

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.

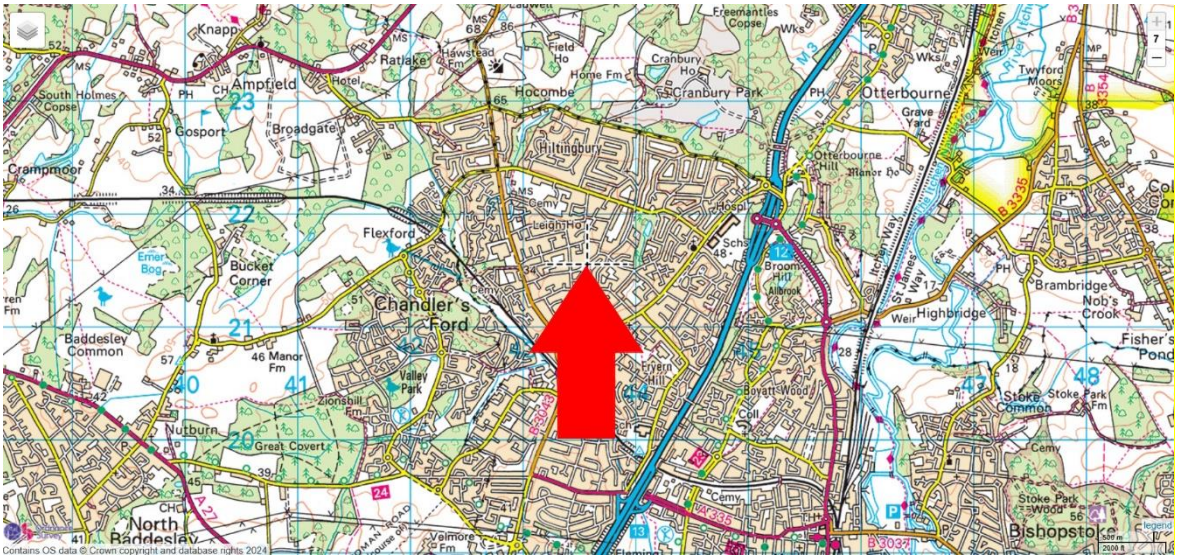


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Figure 3. Plan of the site with the buildings surveyed highlighted in red and showing the indicative locations of the other ecological constraints (not to scale).

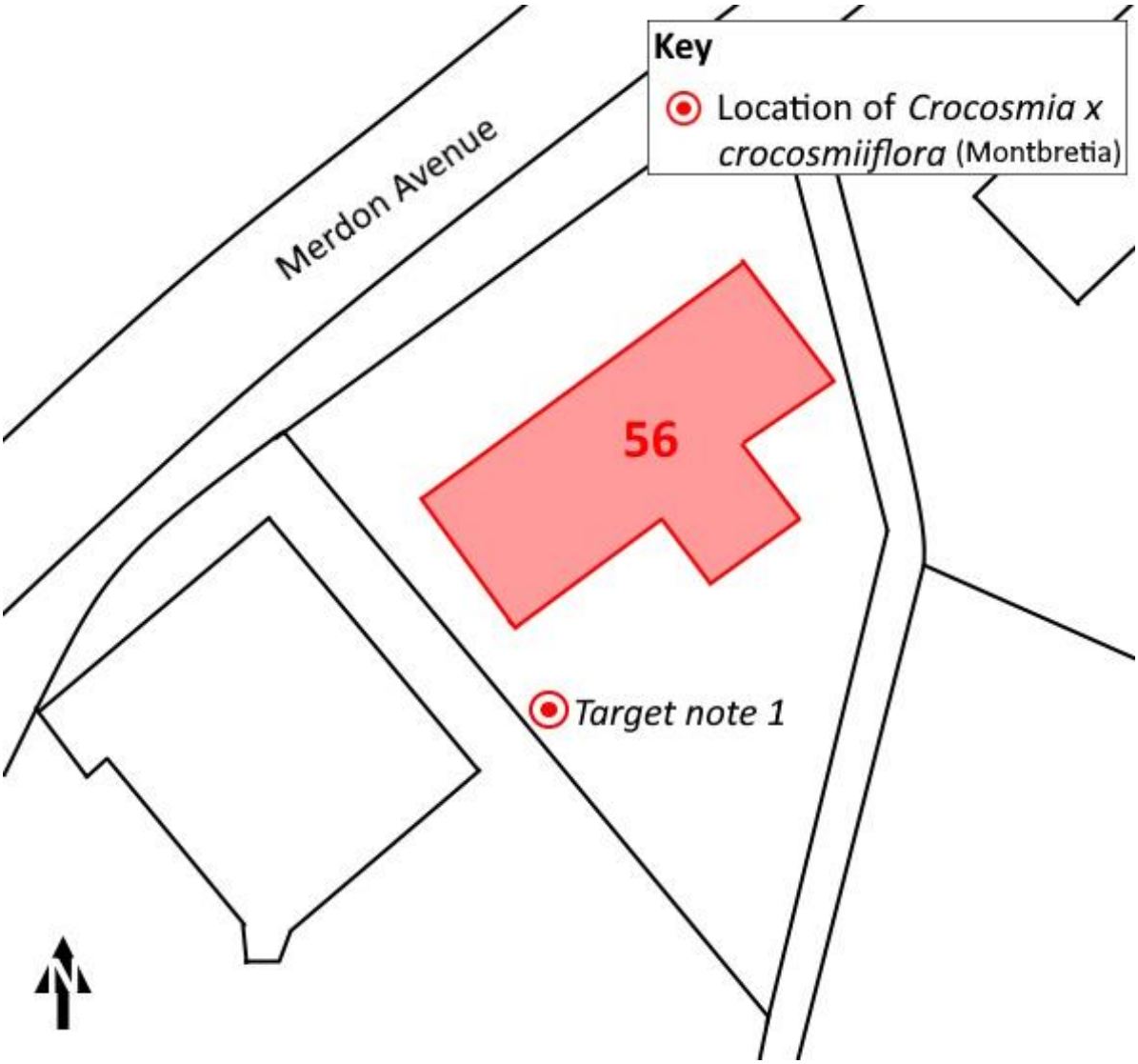

Figure 4. Plan showing the indicative locations of the proposed enhancement measures (not to scale).

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

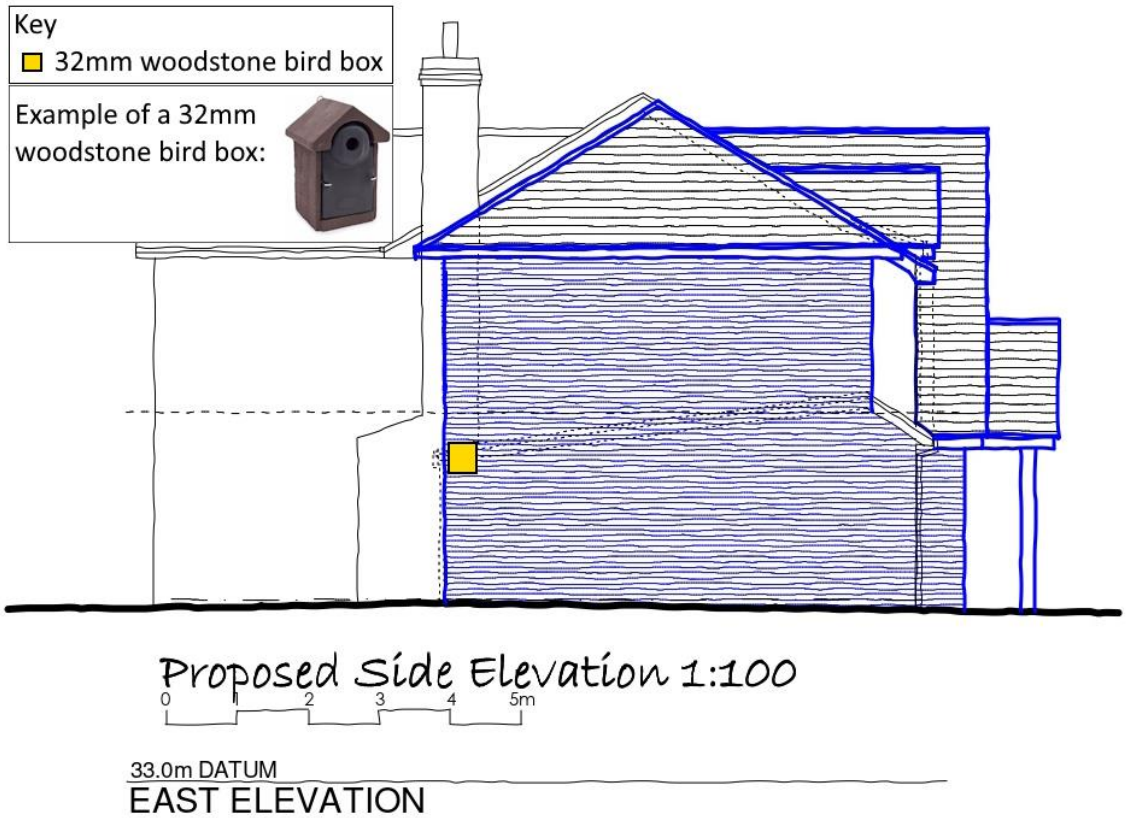

Figure 6. Plan showing the indicative locations of the proposed enhancement measures (not to scale).

7 PHOTOGRAPHS

Photo 1. Location of Crocosmia × crocosmiiflora *(Montbretia) on site.*

Photo 2. Mature trees just beyond the south boundary.

Photo 3. Amenity grassland making up much of the rear garden, bordered by shrubs and ornamental planting.

Photo 4. The front garden is partially amenity grassland, with hardstanding driveway and a laurel hedge along the north boundary.

8 REFERENCES

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9 APPENDIX A: LEGISLATION

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 Biodiversity Net Gain (BNG)

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG) (required since January 2024 and since April 2024 for small sites). BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside:

- a strengthened legal duty for public bodies to conserve and enhance biodiversity,
- new biodiversity reporting requirements for local authorities, and mandatory spatial strategies for nature: Local Nature Recovery Strategies or 'LNRS'.

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).*"

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.

10 APPENDIX B: BAT ECOLOGY

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.

11 APPENDIX C: OTHER ENHANCEMENTS FOR WILDLIFE

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.

Table 11.1.1. Emorsgate seed mix species composition.

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

Festuca rubra	Red Fescue
Poa nemoralis	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**
Achillea millefolium	Yarrow	Early summer
Aubretia species	Aubretia	Spring to early summer
Berberis darwinii	Darwin's Barberry	Spring
Iberis sempervirens	Candytuft	Summer to autumn
Centaurea montana	Cornflower	Spring to summer
Centaurea scabiosa	Knapweed	Summer to autumn
Centranthus ruber	Red valerian	Summer to autumn
Cornus sanguinea	Dogwood	Summer
Dianthus barbatus	Sweet William	Summer
Echinacea species	Echinacea	Summer to autumn
Erysimum species	Wallflowers	Spring to early summer
Glebionis segetum	Corn marigold	Spring to summer
Hebe species	Hebes	Summer to autumn
Hedera helix	Ivy	Autumn
Hesperis matronalis	Dame's-violet	Spring to summer
Hyacinthoides non-scripta	English Bluebell	Spring
Hylotelephium spectabile	Ice plant 'Pink lady'	Early autumn
Hypericum species	St John's wort	Spring
Ilex aquifolium	Holly	Spring to summer
Jasminum officinale	Common White Jasmine	Summer to autumn
Lavandula angustifolia	Garden Lavender	Summer
Leucanthemum vulgare	Ox-eye daisy	Summer
Limnanthes douglasii	Poached egg plant	Summer
Lonicera caprifolium	Perfoliate Honeysuckle	Summer
Lonicera etrusca	Italian Honeysuckle	Summer to autumn
Lonicera japonica	Japanese Honeysuckle	Spring
Lonicera periclymenum	Honeysuckle	Summer to autumn
Lunaria annua	Honesty	Spring
Malus domestica	Apple	Spring
Malus sylvestris	Crab Apple	Spring
Malva species	Mallow	Summer to autumn
Matthiola longipetala	Night-scented stock	Summer
Myosotis sylvatica	Wood forget-me-not	Spring
Nicotiana species	Tobacco plant	Summer
Oenothera species	Evening primroses	Summer to autumn
Papaver rhoeas	Corn poppy	Summer
Phacelia species	Phacelia	Summer to autumn
Primula vulgaris	Primrose	Spring
Rosa species	Rose	Summer
Rubus fruticosus agg.	Bramble	Spring to summer
Saponaria officinalis	Soapwort	Summer

Saxifraga fortunei	Cherry pie	Summer to autumn
Scabiosa species	Scabious	Summer
Silene dioica	Red campion	Spring
Silene noctiflora	Night-scented Catchfly	Summer to autumn
Silene vulgaris	Bladder Campion	Summer
Verbena species	Vervain	Summer to autumn
Viburnum lantana	Wayfaring-tree	Spring to summer
Viburnum opulus	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**
Angelica species	Angelica	Summer to autumn
Borago officinalis	Borage	Spring to early autumn
Calendula officinalis	English marigolds	Summer to autumn
Foeniculum vulgare	Fennel	Summer to early autumn
Hesperis matronalis	Dame's-violet, often sold as Sweet Rocket	Spring to summer
Hyssopus officinalis	Hyssop	Summer to early autumn
Matthiola bicornis	Night-scented Stock	Spring to autumn
Melissa officinalis	Lemon balm	Summer
Monarda species	Bergamot	Summer to early autumn
Nicotiana species	Tobacco-plant	Spring to autumn
Oenothera species	Evening-primroses	Summer
Origanum vulgare	Marjoram	Summer
Rosmarinus officinalis	Rosemary	Spring
Saponaria officinalis	Soapwort	Summer to autumn
Silene noctiflora	Night-scented Catchfly	Summer to autumn
Silene vulgaris	Bladder Campion	Spring to summer
Tanacetum parthenium	Feverfew	Summer to early autumn
Thymus species	Thyme	Summer

New hedges could be planted around the edges of the site. These should consist of a mixture of native species such as *Acer campestre* (Field Maple), *Carpinus betulus* (Hornbeam), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Fagus sylvatica* (Beech), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Viburnum lantana* (Wayfaring-tree) and *Viburnum opulus* (Guelder-rose). These species will provide a mixture of leaf shapes and colours through the seasons. In addition, the hedges will contain *Ilex aquifolium* (Holly) and *Taxus baccata* (Yew) to provide an evergreen component for the winter months, and to provide a contrast to the colours of the other plants during the spring, summer and autumn.

Under-sowing new hedges with Emorsgate seed mix EH1 Hedgerow mixture (or equivalent) provides cover for wildlife such as hedgehogs as well as providing an attractive feature while the new hedges become established. Seed mixes suitable for shade are given in *Table 11.2.3.*

Table 11.2.3. Seed mixes suitable for shaded areas.

EH1	
Species	**Common Name**
Wild Flowers	
Alliaria petiolate	Garlic Mustard
Arctium minus	Lesser Burdock
Cntaurea nigra	Common Knapweed
Chaerophyllum temulum	Rough Chervil
Galium album	Hedge Bedstraw
Geum urbanum	Wood Avens
Lathyrus sylvestris	Narrow-leaved Everlasting-pea
Leucanthemum vulgare	Oxeye Daisy
Primula veris	Cowslip
Prunella vulgaris	Selfheal
Saponaria officinalis	Soapwort
Silene dioica	Red Campion
Silene latifolia	White Campion
Silene vulgaris	Bladder Campion
Torilis japonica	Upright Hedge-parsley
Grasses	
Agrostis capillaris	Common Bent
Anthoxanthum odoratum	Sweet Vernal-grass
Brachypodium sylvaticum	False Brome
Cynosurus cristatus	Crested Dogtail
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Slender-creeping Red-fescue
Poa nemoralis	Wood Meadow-grass
EW1	
Species	**Common name**
Alliaria petiolata	Garlic Mustard
Allium ursinum	Ramsons
Anthriscus sylvestris	Cow Parsley
Arctium minus	Lesser Burdock
Arum maculatum	Lords-and-Ladies
Chaerophyllum temulum	Rough Chervil
Cruciata laevipes	Crosswort
Digitalis purpurea	Foxglove
Filipendula ulmaria	Meadowsweet
Geum urbanum	Wood Avens

Hyacinthoides non-scripta	Bluebell
Iris foetidissima	Gladdon
Prunella vulgaris	Selfheal
Silene dioica	Red Campion
Teucrium scorodonia	Wood Sage
Torilis japonica	Upright Hedge-parsley
Grasses	
Agrostis capillaris	Common Bent
Anthoxanthum odoratum	Sweet Vernal-grass
Brachypodium sylvaticum	False Brome
Cynosurus cristatus	Crested Dogstail
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Red Fescue
Poa nemoralis	Wood Meadow-grass

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	≥ 2m	• 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.
Ibstock Eco-habitat or Swift boxes from Hampshire Swifts	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 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.
Vivara Pro Barcelona WoodStone Open Nest Box	Robins, wrens	≤ 2m	• Mount on a tree or large shrub • Conceal amongst foliage to keep well-hidden from predators.
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.

WoodStone Swallow Nest Bowl (Plywood board mounted)	Swallows	≥ 2m	• 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	≥ 5m	• 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	≥ 3m	• 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	≥ 5m	• 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) and bricks 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**
Bee Brick	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
BeePot Bee Hotel	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
Insect Tower	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, tress or fences.
Urban Bee Nester	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.
Urban Insect Hotel	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.

Bee and Bug Biome	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.