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integrating nature conservation

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Ecological Impact Assessment

High Barn
Wokingham Rd
RG10 0RX

September 2024

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1.	EXECUTIVE SUMMARY	4
2.	INTRODUCTION AND BACKGROUND	5
	Site Overview	5
	Scope of Assessment	5
3.	LEGISLATION & POLICY	7
	General Wildlife Legislation	7
	Bat Legislation	7
	National Planning Policy	8
	Local Planning Policy	10
4.	METHODOLOGY	14
	Desk Study	14
	Building Inspection	14
	Emergence Surveys	15
	Evaluating Bat Roosts	16
	Limitations	17
5.	SURVEY RESULTS	19
	Desk Study	19
	Building Inspection	20
	Emergence Survey Results	22
6.	IMPACT ASSESSMENT	24
	Designated Sites	24
	Evaluation of Bat Roosts on Site	24
7.	REFERENCES	26
	APPENDICES	28

QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
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This report remains valid for 12 months from date of issue. Survey data are valid for 12-18 months from the date the survey was undertaken.		

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Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on site at a later date.

The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to works.

1. EXECUTIVE SUMMARY

- 1.1. Darwin Ecology Ltd was commissioned by Mr Mike Allison to undertake an Ecological Impact Assessment (EclA) of proposals for the building at High Barn, Wokingham Rd, RG10 0RX. The assessment was required to support a planning application for re-roofing of the northern elevation and was informed by a desk study, internal and external building inspection and emergence surveys for bats.
- 1.2. During the building inspection, the roof was assessed as being of moderate potential to support crevice dwelling species due to the presence of a number of lifted and slipped roof tiles creating potential roosting features.
- 1.3. During the emergence surveys, no emergences were recorded. Bat activity in the area was moderate with passes from common and soprano pipistrelles. There was also foraging activity from a brown long-eared within the front garden.
- 1.4. As no bats were observed roosting on the property, the proposed plans will not directly impact any bat roosts on site and works can proceed without further surveys or licensing.
- 1.5. **In the unlikely event that a bat is discovered during the works, all works must cease and a bat licensed ecologist contacted for advice.**
- 1.6. Recommendations for enhancements have also been made which include the installation of bat boxes, beneficial landscaping, and a sensitive lighting plan.

2. INTRODUCTION AND BACKGROUND

- 2.1. Darwin Ecology Ltd was commissioned by Mr Mike Allison to undertake an EclA of proposals for the building at High Barn, Wokingham Rd, RG10 0RX¹. The assessment was required to support a planning application for re-roofing of the northern elevation and was informed by a desk study, internal and external building inspection and emergence surveys for bats.
- 2.2. The internal and external building inspection and emergence surveys follow the Bat Conservation Trust (BCT) Good Practice Guidelines (2023). The subsequent EclA follows the roost assessment methodology set out by Wray *et al.* (2010) and the CIEEM Guidelines for EclA in the UK and Ireland (2018).

Site Overview

- 2.3. The site is located on the outskirts of the village of Hurst and located approximately 4.1km north of the centre of Wokingham.
- 2.4. The site comprises a barn converted as residential unit with associated amenity garden, hardstanding and a further residential converted barn. The immediate landscape is rural with a mosaic of pastoral and arable field lands (see **Figure 1**).
- 2.5. The wider landscape comprises a semi-urban area with pockets of dense urbanisation seen in the surrounding towns of Woodley, Wokingham and Bracknell. The M4 is located 1.4km east of the site and the A329 is located 1.6km south running parallel to the site boundary. Located 1.2km west are a large number of water bodies which divide the wider landscape. A number of woodland and grassland areas are also present within the wider landscape alongside their associated tree margins (see **Figure 2**).

Scope of Assessment

- 2.6. The process of EclA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.
- 2.7. Potential effects on the following ecologically sensitive receptors have been considered during the EclA of High Barn:
- Statutory and non-statutory designated sites; and
 - Features of potential importance (such as loft voids or external crevice features).
- 2.8. The aim of this report is to:
- Identify and describe bats roosts present within the site;
 - Carry out an impact assessment of the proposed works and how they will directly / indirectly affect bats and their roosts;

¹ Ordnance Survey (OS) Grid Reference: SU 80024 72843

- Outline the relevant legislation and protection afforded to bats; and
- Provide avoidance, compensation, mitigation and enhancement measures recommended to avoid harm / injury to roosting bats.



Figure 1: Site location within the local landscape Copyright Google Earth Pro (August 2024)



Figure 2: Site location within the wider landscape (Copyright Google Earth Pro (August 2024))

3. LEGISLATION & POLICY

General Wildlife Legislation

- 3.1. Wildlife in the United Kingdom (UK) is protected through European and national legislation, supported by national and local policy and guidance. Development can contribute to conservation and enhancement goals outlined by these various legislation and policy by retaining and protecting the most valuable ecological features within a site and incorporating enhancements to provide biodiversity net gain.
- 3.2. This section provides a brief summary of the principle legalisation and policy that triggers the requirement for PRA and further ecological assessments in the UK. The presence of protected species within a site are a material consideration during the planning process. PRAs and any necessary further ecological assessments provide an ecological baseline for a site and evaluation of the potential impact of proposals.
- 3.3. It is the responsibility of those involved with development works to ensure that the relevant legislation is complied with at every stage of a project. Such legislation applies even in the absence of related planning conditions or projects outside the scope of the usual planning process (i.e. permitted development projects or projects requiring Listed Building Consent only).

Bat Legislation

- 3.4. In England and Wales, all bat species and their roosts are legally protected under the European *Habitats Directive (1992)*; the *Conservation of Habitats and Species Regulations (2017)*; the *Wildlife and Countryside Act (1981) (as amended)*; the *Countryside and Rights of Way Act, 2000*; and the *Natural Environment and Rural Communities Act (NERC, 2006)*.
- 3.5. Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, brown long-eared *Plecotus auritus*, soprano pipistrelle *Pipistrellus pygmaeus*, and noctule *Nyctalus noctula* bats are all species of principal importance in England under *Section 41* of the *Natural Environment and Rural Communities Act 2006*.
- 3.6. You will be committing a criminal offence if you:
 - Deliberately capture, injure or kill a bat;
 - Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
 - Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
 - Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; or
 - Intentionally or recklessly obstruct access to a bat roost.

- 3.7. The government's statutory conservation advisory organisation, Natural England, is responsible for administering European Protected Species (EPS) licences that permit activities that would otherwise lead to an offence.
- 3.8. A licence can be obtained if the following three tests have been met:
- Regulation 53(9)(a) - there is “no satisfactory alternative” to the derogation, and;
 - Regulation 53(9)(b) - the derogation “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range” and;
 - Regulation 53(2)(e) - the derogation is for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

National Planning Policy

- 3.9. The *National Planning Policy Framework (2023)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 ‘Conserving and enhancing the natural environment’ details what local planning policies should seek to consider with regard to planning applications.
- 3.10. Planning policies and decisions should contribute to and enhance the natural and local environment by:
- 180 a) 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);
 - 180 b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - 180 d) Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
 - 181) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement

of natural capital at a catchment or landscape scale across local authority boundaries;

182) Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and Broads. The scale and extent of development within all these designated areas should be limited, while development within their settings should be sensitively located and designed to avoid or minimise adverse impacts on the designated area.

3.11. Specific policies regarding habitats and biodiversity comprise:

185) To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and
- b) 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.

186) When determining planning applications, local planning authorities should apply the following principles:

- a) If significant harm to biodiversity resulting from a development cannot be avoid (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;
- b) Development on land within or outside of Sites 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. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the feature of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) 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; and

d) Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

187) The following should be given the same protection as habitats sites:

a) Potential Special Protection Areas and possible Special Areas of Conservation;

b) Listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

Local Planning Policy

- 3.12. The relevant local plan to the site is the Wokingham Local Plan (2013-2033) which is a set of documents that set out the strategic vision for growth and development in the borough, policies and objectives regarding its delivery and protection of the district's environment. They comprise the Core Strategy, The Managing Development Delivery Local Plan, and the now out dated South East Plan (saved policy NRM6). The relevant policies from the Core Strategy regarding ecology, nature conservation or development and relevant ones comprise:

Policy CP7 - Biodiversity

Sites designated as of importance for nature conservation at an international or national level will be conserved and enhanced and inappropriate development will be resisted. The degree of protection given will be appropriate to the status of the site in terms of its international or national importance. Development:

- A) Which may harm county designated sites (Local Wildlife Sites in Berkshire), whether directly or indirectly, or
- B) Which may harm habitats or, species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or
- C) That compromises the implementation of the national, regional, county and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance,

that no alternative site that would result in less or no harm is available which will meet the need, and:

- i) Mitigation measures can be put in place to prevent damaging impacts; or
- ii) Appropriate compensation measures to offset the scale and kind of losses are provided.

Policy CP8 - Thames Basin Heaths Special Protection Area

Development which alone or in combination is likely to have a significant effects on the Thames Basin Heaths Special Protection Area will be required to demonstrate that adequate measures to avoid and mitigate any potential adverse effects are delivered.

- 3.13. The relevant policies from the Managing Development Delivery Local Plan (2014) regarding ecology, nature conservation or development and relevant ones comprise:

Policy CC03: Green Infrastructure, Trees and Landscaping

1. Green Routes and Green Route Enhancement Areas are defined on the Policies Map.
2. Development proposals should demonstrate how they have considered and achieved the following criteria within scheme proposals:
 - a) Provide new or protect and enhance the Borough's Green Infrastructure networks, including the need to mitigate potential impacts of new development
 - b) Promote accessibility, linkages and permeability between and within existing green corridors including public rights of way such as footpaths, cycleways and bridleways
 - c) Promote the integration of the scheme with any adjoining public open space or countryside
 - d) Protect and retain existing trees, hedges and other landscape features
 - e) Incorporate high quality, ideally, native planting and landscaping as an integral part of the scheme.
3. Development proposals which would result in the loss, fragmentation or isolation of areas of green infrastructure will not be acceptable.
4. Development proposals within the River Valley areas shall improve or contribute toward:
 - a) The establishment of a Loddon/ Blackwater riverside footpath and bridleway, as defined on the Policies Map, to accommodate dual use
 - b) The establishment of a riverside footpath and cycleway to accommodate dual use along the Emm Brook
 - c) Opportunities for improvements to green infrastructure to help minimise flood risk

Policy TB23: Biodiversity and Development

Planning permission for development proposals will only be granted where they comply with policy CP7 – Biodiversity of the Core Strategy and also demonstrate how they:

- a) Provide opportunities, including through design, layout and landscaping to incorporate new biodiversity features or enhance existing
- b) Provide appropriate buffer zones between development proposals and designated sites as well as habitats and species of principle importance for nature conservation

c) Ensure that all existing and new developments are ecologically permeable through the protection of existing and the provision of new continuous wildlife corridors, which shall be integrated and linked to the wider green infrastructure network.

- 3.14. The relevant saved policy from the South East Plan regarding ecology, nature conservation or development and relevant ones comprise:

Policy NRM6: Thames Basin Heaths Special Protection Area.

New residential development which is likely to have a significant effect on the ecological integrity of Thames Basin Heaths Special Protection Area (SPA) will be required to demonstrate that adequate measures are put in place to avoid or mitigate any potential adverse effects. Such measures must be agreed with Natural England.

Priority should be given to directing development to those areas where potential adverse effects can be avoided without the need for mitigation measures. Where mitigation measures are required, local planning authorities, as Competent Authorities, should work in partnership to set out clearly and deliver a consistent approach to mitigation, based on the following principles:

- i. a zone of influence set at 5km linear distance from the SPA boundary will be established where measures must be taken to ensure that the integrity of the SPA is protected
- ii. within this zone of influence, there will be a 400m "exclusion zone" where mitigation measures are unlikely to be capable of protecting the integrity of the SPA. In exceptional circumstances, this may vary with the provision of evidence that demonstrates the extent of the area within which it is considered that mitigation measures will be capable of protecting the integrity of the SPA. These small locally determined zones will be set out in local development frameworks (LDFs) and SPA avoidance strategies and agreed with Natural England
- iii. where development is proposed outside the exclusion zone but within the zone of influence, mitigation measures will be delivered prior to occupation and in perpetuity. Measures will be based on a combination of access management, and the provision of Suitable Accessible Natural Greenspace (SANG).

Where mitigation takes the form of provision of SANG the following standards and arrangements will apply:

- iv. a minimum of 8 hectares of SANG land (after discounting to account for current access and capacity) should be provided per 1,000 new occupants
- v. developments of fewer than 10 dwellings should not be required to be within a specified distance of SANG land provided it is ensured that a sufficient quantity of SANG land is in place to cater for the consequent increase in residents prior to occupation of the dwellings
- vi. access management measures will be provided strategically to ensure that adverse impacts on the SPA are avoided and that SANG functions effectively
- vii. authorities should co-operate and work jointly to implement mitigation measures. These may include, inter alia, assistance to those authorities with insufficient SANG land

within their own boundaries, co-operation on access management and joint development plan documents

viii. relevant parties will co-operate with Natural England and landowners and stakeholders in monitoring the effectiveness of avoidance and mitigation measures and monitoring visitor pressure on the SPA and review/amend the approach set out in this policy, as necessary

ix. local authorities will collect developer contributions towards mitigation measures, including the provision of SANG land and joint contributions to the funding of access management and monitoring the effects of mitigation measures across the SPA

x. large developments may be expected to provide bespoke mitigation that provides a combination of benefits including SANG, biodiversity enhancement, green infrastructure and, potentially, new recreational facilities.

Where further evidence demonstrates that the integrity of the SPA can be protected using different linear thresholds or with alternative mitigation measures (including standards of SANG provision different to those set out in this policy) these must be agreed with Natural England.

4. METHODOLOGY

Desk Study

- 4.1. A desk study was undertaken for designated sites and bat species and habitat records within 2km of the site:
- The MagicMap website was reviewed, to obtain information on any designated sites of nature conservation interest within 2km of the site and details of any EPS licences issued within 2 km;
 - The Wokingham Borough Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys; and
 - Google Maps and Ordnance Survey (OS) Leisure Maps was utilised to view aerial photographs and maps to assess the ecological context of the site within the wider landscape.
- 4.2. Natural England has developed a tool to help assess the potential risks to Sites of Special Scientific Interest (SSSIs) by proposed developments. These are known as 'Impact Risk Zones' (IRZs) and they define the area around a SSSI that could be sensitive to development, considering the particular sensitivities of the feature for which the site is designated.
- 4.3. The IRZs help inform whether a development proposal may affect a SSSI and if so, whether it is necessary for the Local Planning Authority (LPA) to seek pre-application advice from Natural England. Information on the IRZs was determined from the MAGIC website to determine if the LPA is required to seek consultation for the current development.

Building Inspection

- 4.4. Assistant ecologist Maya Crate BSc (Hons) MSc conducted an external building inspection at the site at High barn on 12th August 2024. The weather conditions at the time of the survey were dry with a slight breeze and approximately 24°C. The following methodology was followed:

External Survey

- 4.5. An investigation was carried out of external features with potential for use by roosting bats, such as gaps under roof and ridge tiles, gaps at soffit boxes or fascias. A search for bat droppings was made beneath each potential entry/exit point identified where accessible. The surveyor used binoculars and powerful, low-heat LED torch.

Internal Survey

- 4.6. An internal survey was not conducted due to the lack of internal void space.

Potential to Support Roosting Bats

- 4.7. Each building was assessed for its potential to support roosting bats as detailed in **Table 1** below which is taken from the Bat Conservation Trust 2023 guidelines Table 4.1, Table 7.1 and Table 7.2.

Table 1: Roost classification from the Bat Conservation Trust (2023) guidelines.

Category	Description of roosting habitat	Number of surveys required
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 further surveys
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 further surveys
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, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis by large numbers of bats.	Single survey between May to August
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, condition and surrounding habitat but unlikely to support a roost of high conservation status.	Two surveys with at least one survey between May to August.
High / Confirmed	A structure with one or more potential roost sites that are obviously suitable for use by a larger number 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.	Three surveys with at least two surveys between May to August.

Emergence Surveys

- 4.8. Two dusk emergence surveys were conducted during the 2024 survey season. Surveys were undertaken in line with BCT Good Practice Guidelines (2023), with any limitations outlined below.
- 4.9. Surveyors were positioned strategically around the building(s) in order to provide adequate coverage of all elevations. Surveyors focused on any features identified during the Preliminary Roost Assessment (PRA) as having potential to be used as bat access points. The location of the surveyors and building numbers and names are shown on **Figure 3, Bat Survey Results**.
- 4.10. Dusk surveys began 15 minutes prior to sunset and lasted 1.5 hours after sunset. Surveyors recorded bat activity using hand-held Echometer Touch detectors connected to Android or iPhone devices. Analysis of recordings was undertaken after the surveys to confirm species identification. Observations recorded during surveys included bat access points, bat species, time, and type of activity (e.g. emergence, re-entry, commuting, foraging, etc.). Incidental records of bats within the vicinity of the building (but not necessarily roosting) were also recorded.

- 4.11. Each surveyor used a night vision aid (NVA) to aid in their visibility during each survey. Equipment used consisted of Nightfox Whisker night vision binoculars and Canon AX20 video camera with a Black Sun 2 B502 infra-red illuminator. These were used to film bat activity for the duration of the survey at a fixed position.
- 4.12. All recorded video footage was reviewed in full following the survey to identify any bat activity captured and any significant activity patterns and access points were identified and recorded.
- 4.13. A summary of the surveyors, survey dates and weather conditions are provided in **Table 2**.

Table 2: Emergence and re-entry survey dates and weather conditions

Date	Survey type	Sunset/ sunrise time	Start weather conditions	End weather conditions	Surveyors
12/8/24	Emergence	20:31	Rain: 0 Wind: 2 Cloud cover: 10 Temperature: 24°C	Rain: 0 Wind: 1 Cloud cover: 0 Temperature: 19°C	Maya Crate Hannah Kirby
3/9/24	Emergence	19:44	Rain: 0 Wind: 1 Cloud cover: 7 Temperature: 18°C	Rain: 0 Wind: 1 Cloud cover: 7 Temperature: 18°C	Eleanor Kemp Sarah Alexander
Rain: a scale of 0 to 5 (e.g 0 (dry) - 5 (very heavy rain), Wind: a Beaufort scale of 0 to 12. (e.g 0 (calm) - 6 (strong breeze) - 12 (hurricane)) Cloud cover: an Okta scale of 0 to 12 (e.g 0 (no cloud) - 4 (half visible sky) - 8 (no visible sky)					

Evaluating Bat Roosts

- 4.14. The value of the bat roosts on site was assessed in accordance with the article published in the CIEEM, In Practice Magazine - *Valuing Bats in Ecological Impact Assessment* (Wray, et al., 2010).
- 4.15. Roosts are assigned a relative ecological value based on the rarity of the species (**Table 3**) and categorisation of roost type (**Table 4**), informed by survey results. Once a value has been calculated, robust mitigation for any impacts identified from the proposed development can be determined.

Table 3: Categorising bat species by distribution and rarity

Rarest	Rare	Common
Greater horseshoe Bechstein's Alcahoo Greater mouse-eared Grey long-eared Barbastelle	Lesser horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' pipistrelle Serotine	Common pipistrelle Soprano pipistrelle Brown long-eared

Table 4: Valuing bat roosts

Geographic Frame of Reference	Roost Type
District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small number of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity roosts (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting Sites of Special Scientific Interest (SSSI) guidelines
International	Special Areas of conservation (SAC) sites

Limitations

- 4.16. Ecological surveys are limited by factors that affect the presence of plants and animals such as the time of the year, weather, migration patterns. The survey was undertaken in August and therefore represents a valid sample of ecological evidence present on that date/season.

- 4.17. Ecological data is typically deemed valid for 18 months. This report remains valid for 2 years from the date of the survey, however, a walkover survey after 18 months may be required to demonstrate whether or not the habitats have remained as described.
- 4.18. Many species of bat in the UK are crevice-dwelling, and bats or signs of bats can be difficult to find within a building. In addition, there may be areas that are inaccessible to the surveyor, however as this was just an external inspection for external works, all areas were accessible.
- 4.19. It is noted that some UK bat species are easier to detect than others; for example the noctule *Nyctalus noctula* can be detected at a significantly greater distance when compared to the quieter brown long-eared. This can result in the undercounting of some bat species when compared to others.
- 4.20. The surveys were undertaken in accordance with the best practice guidelines within the peak bat activity period (May to September inclusive). The results are therefore considered to be an accurate representation of the general use of the building(s) by roosting bats.
- 4.21. Nevertheless, bats may use roosting features intermittently throughout the year and may be present in larger or smaller numbers depending on their breeding cycle, weather conditions and in response to disturbance. Bats may be present at other times of the year and the results in this report should therefore be viewed in the context intended.
- 4.22. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

5. SURVEY RESULTS

Desk Study

- 5.1. There are two statutory designated sites within 1km of the site. These are detailed in **Table 5**.

Table 5: Statutory designated sites within 2 km of the site at High Barn.

Designated sites	Name and designation type	Reason for designation	Approximate distance from site
Within 2km of Site	Lodge wood & Sanford Mill SSSI	Lodge Wood and Sanford Mill is a 2.3-hectare (5.7-acre) biological Site of Special Scientific Interest east of Woodley in Berkshire. This site consists of two small wet woodlands bordering the River Loddon. Plants present here include <i>Leucojum aestivum</i> (the Loddon Lily), <i>Urtica dioica</i> , <i>Galium aparine</i> , <i>Glechoma hederacea</i> , <i>Primula vulgaris</i> , <i>Anemone nemorosa</i> , <i>Mercurialis perennis</i> , <i>Ranunculus ficaria</i> , <i>Caltha palustris</i> , <i>Adoxa moschatellina</i> , <i>Hyacinthoides non-scripta</i> , <i>Narcissus pseudonarcissus</i> .	1.5km northwest
	Lavells Lake LNR	Lavell's Lake Local Nature Reserve (LNR) is a 15 hectare area set to the north of Dinton Pastures Country Park. The lake itself is surrounded by a mixture of managed wetland habitats containing reed beds, sedges, grassy areas, coppiced scrub and hedgerows. The River Loddon runs along the western boundary of the reserve. A small conservation meadow and an open access meadow lie to the southeast of the lake. The area was deemed a conservation area in 1984 and officially became a local nature reserve (LNR) on the 7th of July 1987. The site has a vast array of rare birds visiting and nesting, including Great White Egrets, Kingfishers, Bitterns, and Green Sandpipers.	1.4km west

- 5.2. There are five records of EPS Licences granted for bats within 2km. These are detailed in **Table 6**.

Table 6: ESPL granted for bats within 2 of the site

Case Reference	Licence dates	Species designation	Reason for licence	Approximate distance from site
2015-8658-EPS-MIT	28/04/2015-30/04/2020	<i>plecotus auritus</i> , <i>Pipistrellus</i> <i>pipistrellus</i>	<i>Destruction of a breeding site and a resting place</i>	1.6km south east

2016-25277- EPS-MIT	14/09/2016 - 13/09/2021	<i>Pipistrellus pygmaeus</i>	<i>Destruction of a breeding site</i>	1km north
EPSM2012-4899	4/10/2012 - 1/10/2014	<i>Plecotus auritus, Pipistrellus pipistrellus</i>	<i>Destruction of a resting place</i>	705m north
2019-43858- EPS-MIT	01/02/2020 - 28/02/2025	<i>Pipistrellus pygmaeus</i>	<i>Destruction of a resting place</i>	1km northwest
2017-32001- EPS-MIT	01/01/18 - 30/04/2018	<i>Pipistrellus pipistrellus</i>	<i>Destruction of a resting place</i>	362m west

- 5.3. A search of the of the Wokingham Borough council revealed no records of nearby planning applications with relevant ecological documents in the past 2 years within 1km.
- 5.4. There are 10 areas of priority deciduous woodland sites within 1km of the site boundary. The closest area is located 600m north. This area of woodland is also registered on the National Forest Inventory (Woodland - Broadleaved). Further priority habitats within 1km of the site comprise two areas of wood pasture and parkland located 489m west and 788m north. Four areas of traditional orchard located 226m northeast, 149m north, 897m north and 765m west. There are no areas of ancient woodland within 1km of the application site.

Building Inspection

- 5.5. B1 was a two storey residential property, which is a converted barn comprised of wooden cladding construction with a pitched roof clad with clay tiles. A garage was also present within the boundary but this building is not being impacted by the proposed re-roofing.
- 5.6. The roof had a large dormer window with wooden cladding cheeks on the northern aspect, and a single storey pitched roof extension with clay tiles extending to the north on the western aspect. A large number of lifted and slipped tiles were present on the roof. These lifted tiles created many potential roosting features for crevice dwelling species. However, a number of these features on the northern aspect had a coverage of moss indicating high humidity on this aspect.
- 5.7. A ridge tile on the western aspect of the property was also slightly lifted creating more crevice features.
- 5.8. The dormer window at the front of the property had a large number of lifted and damaged tiles on both aspects creating plenty of potential roosting features for crevice dwelling species. The cladding was well sealed around the whole property with no roosting features being identified and no access points being visible.
- 5.9. Lead flashing was present but was mostly good condition with only a small amount lifted which could be a potential roosting feature.
- 5.10. Overall, the property at high barn was assessed as having a moderate potential to support crevice dwelling species due to a number of lifted and slipped clay roofing tiles.

Building Inspection Photographs



Image 1: Front of the roof being impacted (northeastern aspect)



Image 2: Front of the roof being impacted (northwestern aspect)



Image 3: A number of lifted roof tiles on the dormer window



Image 4: Lifted tiles on the northwestern aspect



Image 5: Lifted ridge tile on the northwestern aspect



Image 6: Lifted tiles on northeastern aspect with evidence of moss

Emergence Survey Results

Dusk Survey 12/08/24

- 5.11. During the first survey, no emergences were recorded from the property. This was later confirmed through review of the night vision aids.
- 5.12. Activity was moderate to high during this survey. The first common pipistrelle was seen passing along the hedge on the eastern boundary at roughly 8:40pm. Frequent passes were then present between 20:50 until 21:46. Soprano pipistrelles were also seen foraging around the front garden between 21:05 and 21:46. Other notable activity included foraging from a brown long-eared bat between 21:14 - 21:25 near the garage of the barn and an audible pass by a noctule flying south to north overhead of the property.

Dusk Survey 03/09/24

- 5.13. During the second emergence survey, no emergences were recorded from the property. This was later confirmed through review of the night vision aids.
- 5.14. Activity was also moderate to high during this survey. The first bat was seen at 20:00 and continuous foraging and passing then occurred until roughly 20:52. Common pipistrelles were the most frequent species identified and they were seen commuting along the alley between the barn and the hedge. Soprano pipistrelles were also seen commuting between the eastern and western aspects. Other notable activity included two audible passes from noctule at 20:08 and 20:10. Activity was very quiet after 20:44.

6. IMPACT ASSESSMENT

Designated Sites

- 6.1. It is not anticipated that the proposed works will impact any statutory designated sites, priority habitats or ancient woodlands through land take. There will be no net increase in residential units or land take and therefore no resulting impacts to surrounding designated sites, green space and wildlife sites through increased footfall or amenity pressures.

Evaluation of Bat Roosts on Site

- 6.2. Based on the results of the building inspection and the phase two emergence survey, it is likely that the residential property at High barn does not support a bat roost.
- 6.3. The proposed plans at High Barn comprise the re-roofing of the northern aspect of the existing building.
- 6.4. The proposed works will not result in the destruction of a bat roost, and therefore, works can proceed without any requirement of a protected species licence or further surveys.
- 6.5. No precautionary measures are recommended in this instance, however care should be taken during the strip of the roof. The soft strip of the roof should be done carefully by hand, with the underside of the tiles and any crevices created by mortar checked for bats in the unlikely event that they are present.
- 6.6. In the unlikely event that a bat is discovered during the works, all works must cease and a bat licensed ecologist contacted for advice.**

Mitigation

- 6.7. *Lighting:* The lighting on site should be directed to avoid light spillage onto vegetation, particularly linear habitat features such as hedgerows. Bats are sensitive to light and could potentially avoid the area if access points or the surrounding areas become lit. Appropriate lighting options will prevent a negative impact on bats potentially using the habitats on site and should be approved by a suitably qualified and licensed bat ecologist. If appropriate measures are taken to reduce light spillage from the development, it is likely that there will be no negative impacts on local bat populations.
- 6.8. Upward lighting must be avoided by fitting lights with downward facing baffles and fixtures to ensure no light spillage above an angle of 70°. Lighting will be triggered by motion sensors using a short timer where possible and in compliance with building regulations. Warm white LEDs will be used in preference to bright white LEDs. All lighting plans should be reviewed by a suitably qualified ecologist before finalising and submitting for approval.
- 6.9. A sensitive lighting plan should be followed throughout the works process and works should be limited to daylight hours.
- 6.10. See **Appendix** for further guidance regarding bats and lighting.

Compensation

- 6.11. In order to compensate for the loss of bat roosting features within the northern aspect of the property, two lifted ridge tiles will be installed on the roof of the new roof. Ridge features are created by using a wet/mortared ridge system. **Note:** dry ridge systems will not be suitable for these features and should be avoided in the material design phase. By providing a minimal gap in the mortar to allow access for bats under the ridge tiles. By linking together several ridge tiles, a feature suitable for multiple bat species can be created.
- 6.12. The crevices within the roof provided opportunities for common nesting birds. To enhance the site and compensate for the loss of nesting bird opportunities within the building, two wood stone swift nest boxes should be installed on the building. Swift boxes can be used by not only swifts but by a range of other bird species including sparrows, tits and starlings. The boxes should be installed at a height of 5m or more, away from windows and vents and with an open flying space in front.

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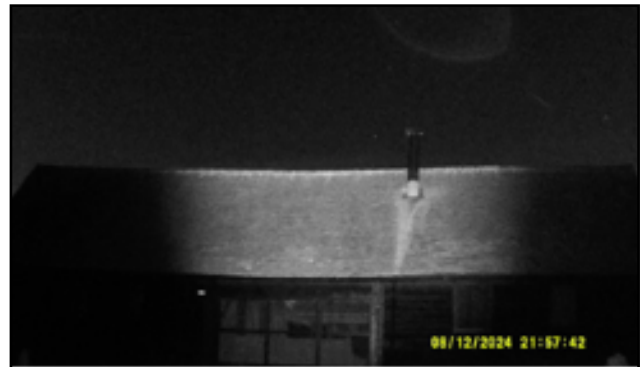
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Appendix : NVA Views at the beginning and end of each emergence survey.

Survey One - 12/8/24



Images: Showing the start of the survey (left) and the end of the survey (right). 1st Row is the northwestern NVA, 2nd Row northeastern and 3rd Row Southern

Survey Two - 3/9/24



Images: Showing the start of the survey (left) and the end of the survey (right). 1st Row is the northeastern NVA and 2nd Row is the northwestern



THE IMPACT OF LIGHTING ON BATS

Bats favour a dark environment for both roosting and foraging as they are adapted to low-light conditions. Artificial lighting will disturb bats if the lighting covers roost access points, flight paths or foraging habitats.

The main peak of nocturnal insect abundance occurs at dusk and a delay in emergence results in a lower foraging rate for bats.

Artificial lighting creates a 'vacuum effect' for nocturnal insects. During the night nocturnal insects use the light of the moon* to navigate. However, artificial lighting and even sky glow above cities obscures the natural moonlight as it is closer

and radiates light in multiple directions.

Some species of bats have been recorded foraging around street lights such as *Pipistrellus* species and *Nyctalus* species. However, species that are less tolerant of artificial light are at a disadvantage when foraging as insects are drawn away from these species usual foraging grounds into the zones of artificial light.

Lighting must be considered in context to any development as increased lighting may cause roost abandonment, reduced reproductive success, and reduced foraging. Mitigation to reduce the impacts of lighting for bats is therefore of great importance in bat conservation.

Table 1: Summary of predicted impact of lighting for each species/genus

Impact	High	Medium	Low
Behaviour			
Maternity roost	All species	-	-
Night roost	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>	-
Emergence	All species	-	-
Foraging	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Commuting	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Swarming	All species	-	-
Hibernation	All species	-	-

*For more information see Warrant, E., and Dacke, M. (2016) Visual Navigation in Nocturnal insects. *Physiology*, 31, 182-196.



Sources of light that can disturb bats include; light spill via windows, sport floodlighting, car headlights, roadside lighting, security lighting, aesthetic lighting of waterways, and aesthetic illumination of buildings. Glare will affect bats over greater distance than the target area directly illuminated.

Avoidance is the most effective method, but if this is not possible the following measures should be considered.

What lighting should I use?

- Low pressure sodium lights or 'warm' LEDs
- Wavelength above 540nm
- Colour temperature below 2700K
- Shielded lights that prevent light spill above a 70 degree angle
- Passive infrared (PIR) motion sensors



What to avoid:

- Lighting roost entrances, flightpaths, and foraging or commuting routes
- Reflective surfaces beneath lighting
- High level lights
- Non-directional lighting

Lighting should be considered at an early stage allowing impacts to be minimised through the design of the site.

Key Points

- Keep lighting intensity to the minimum level required
- Limit the times that lights are on to provide some dark periods (e.g. switching installations off between midnight and 5am)
- Dim lighting according to demand
- As an alternative to lighting pathways use paving materials that reflect moonlight
- Low level lighting allows darkness to be retained within higher vegetation
- Set dark habitat buffers - lighting should always be a minimum of 25m from vegetated margins and 40m from waterbodies
- Incorporate dark corridors within the site
- Compensate for the loss of dark areas by enhancing other dark areas
- Consider building design - install internal lighting away from windows



General Mitigation for Bat Roosts

Bat Mitigation Class Licence (BMCL)

Registration for a BMCL can be submitted following planning approval. This licence permits the disturbance and/or capture of bats and/or damage/destruction of bat roosts of low conservation significance. You may apply for a BMCL in the following circumstances:

- No more than three common species of bat;
- Only individual or small numbers of bats of each species; and
- No more than three roosts in total across all structures at the site.

Natural England aim to provide licensing details in 10 working days



European Protected Species Licence (EPSL)

An application must be submitted by the local planning authority and must be granted before any works can commence on site. You must apply for an EPSL in the following circumstances:

- More than three species of bat or roosting structures are present at the site
- Rarer species are present
- Presence of a Maternity roost
- Roost present within a tree

Natural England aim to provide licensing decisions in 30 working days. Licences will only be granted where it can be shown there will be no detriment to the species of bats concerned.

Timing: If your roost is a confirmed **Hibernation** roost works cannot be carried out in **Oct-Feb**

If your roost is a confirmed **Maternity** roost works cannot be carried out in **May-Aug**



Supervision

Once you have been granted your licence, a Natural England bat-licensed ecologist will need to be on site to over see the stripping of any identified or potentially suitable roosting features. If any bats are found on site they can then be lawfully handled and placed safely into a newly provided bat box.

After the strip has taken place the provision of new roosting opportunities must be placed on site as mitigation such as bat boxes which are suitable for the roosting bat species which were found on site.

Materials

Breathable membrane (pictured on the left) should **not** be used in new loft voids as this can lead to entanglement and trapping of bats and increase the variability of the microclimate in the loft. Instead **bitumen felt** (pictured on the right) should be utilised as bats can grip onto it, helping to maintain a safe and suitable environment.





Gaps and Crevices

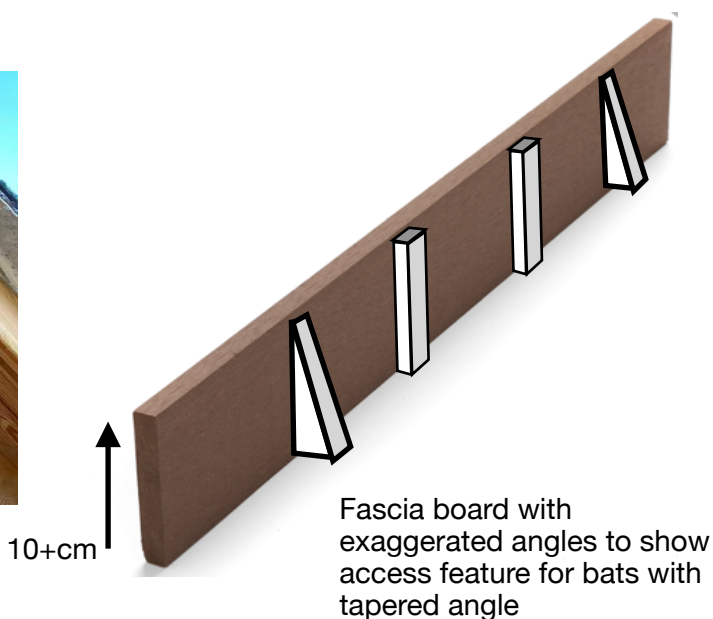
Crevice-dwelling bat species can utilise gaps in fascias, barge board and soffits, and potentially can gain entry to the interior roof void if the gap is large enough.

These areas of a building are often replaced or repaired which would destroy any identified roosting features. Luckily there are features that can be implemented to compensate for the loss of these features.



A simple option to compensate for a lost roosting feature in a fascia or barge board is to cut an access hole flush with the wall in which the new/replacement fascia, barge board, or soffit box is placed. It needs to be close to the wall as bats need somewhere to land before they can climb up into a gap

Alternatively, features can be created by installing wide barge boards directly on overlapping cladding, which creates suitable gaps for crevice roosting bats where natural crevices are created due to the profile of the boards. Gaps of at least 4 inches deep and approximately 15mm wide at the top are suitable for small bats such as pipistrelle species.





Lifted tile bat access features

Lifted tiles provide a simple, discreet bat roosting opportunity which are great for replicating existing roost features on traditional tiled roofs. They can be cheaply and easily created using materials available on site to provide a bespoke mitigation solutions for bat licence projects.



Small pieces of tile, mortar, pieces of wooden batten or rolled lead tingle can be used to raise the tile and create a suitable access gap for bats.



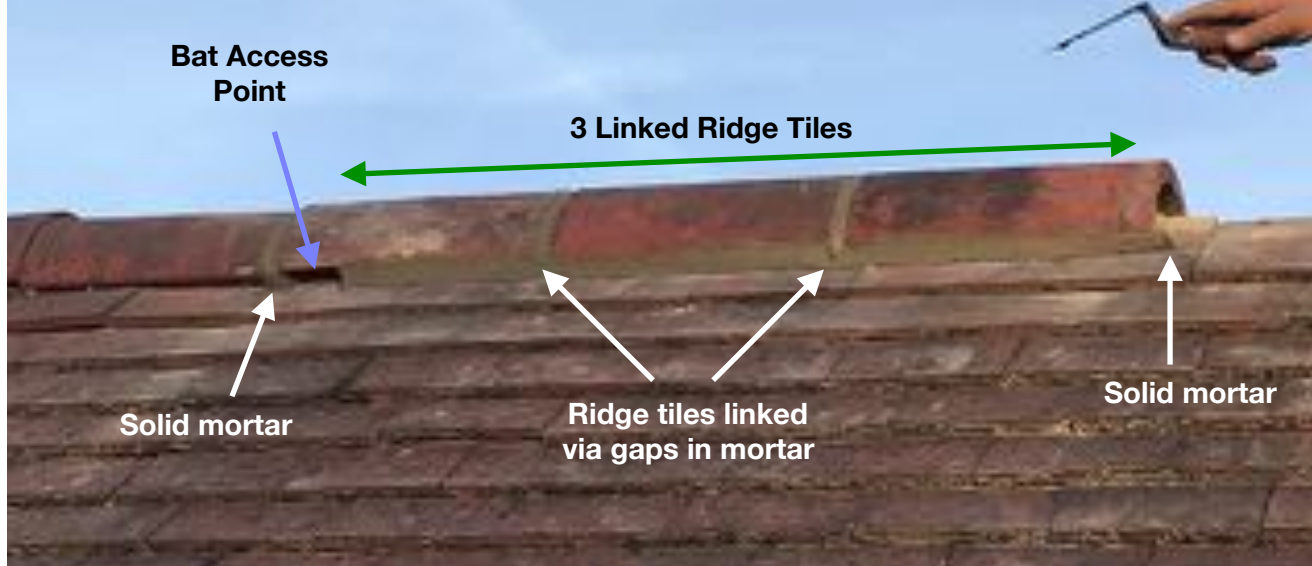
Lifted tiles should provide a gap of approximately 15-25 mm beneath the tile to provide access to the batten space of the roof. The roof should be lined with bitumastic felt to create the perfect warm crevices suitable for roosting bats.



These features are also suitable for incorporation on areas of hanging tiles to provide bat access to the batten space.

The locations for these features should be agreed with an ecologist to provide optimal conditions for the bat species and roost types present on site.

Lifted tile features can also be used to provide access into a roof void suitable for roosting bats. To provide access into the roof space, a small gap must be cut into the roofing felt. This should be approximately 50 mm x 20 mm to provide access for bats but discourage birds from entering the roof space.

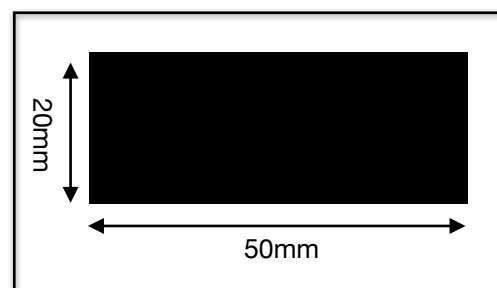


HOW TO CREATE

Note: Use three adjacent ridge tiles for one Ridge Tile Crevice Feature



1. Notch out the underside of a ridge tile measuring 20mm high by 50mm wide.



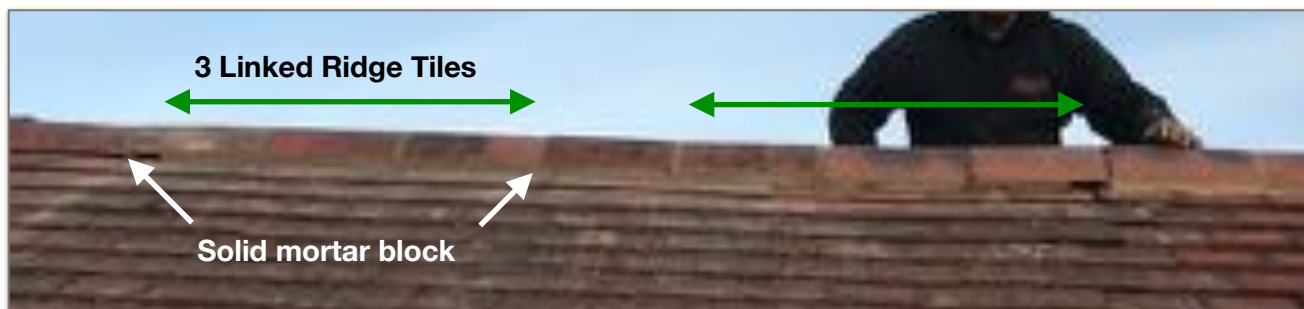
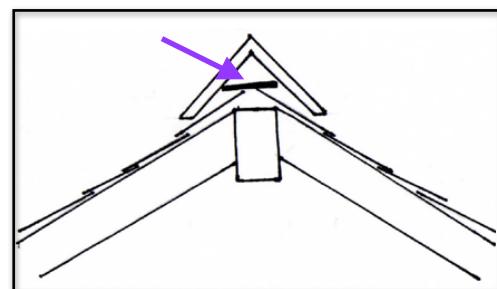
2. Or leave a gap in the mortar of the same size



3. Leave the gap mortar free when bedding the tile onto the ridge.



4. To ensure the three ridge tiles remain linked either; place a broken tile over the ridge and mortar only above the tile (left) or fill one side with mortar and leave the other side empty (do this on alternate sides to ensure the feature does not become draughty) (right).



5. At each end of the three linked ridge tiles insert a solid mortar block to reduce through draughts.



How to Install



Integrated bat boxes can be installed into the brickwork of buildings to provide a roosting spot for bat species.

Being embedded in the masonry of a building, they do not impact the exterior seal of structure and are commonly integrated in new builds.

With some modification or bespoke design, integrated bat boxes can be installed in such a way that it does not interfere with a building's exterior facade.

The 1FR bat tube has a 45 degree angle for bats to land on and crawl upwards into the bat tube. It has been designed to be installed within or adjacent to the the external skin of the block work or brickwork.

For a rendered finish, the 1FR bat tube can be built into the external skin of breeze blocks (acting as a block) and be rendered over (ensuring the access point is left clear). Ridges should be created in the render immediately below the access point, which will aid the bats when crawling into the bat tube.

For a brickwork finish, the 1FR bat tube should be installed within the brickwork, set back slightly to allow the front to either be rendered over or for a continuity of brick slips to be mortared over the top of the tube. The upper brick slip should overlap the access point and the lower brick slip should be in line with the 45 degree angle of the bat tube.

Alternatively, **Habibat** bat tubes can be purchased that are designed for brickwork design and can be custom made.





TYPES OF BAT BOXES



Schwegler 2F Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall



Schwegler 1FD Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall
- Small entrance hole discourages birds from using the box



Vincent Pro Bat Box

- Manufactured from timber and recycled plastic
- The front and the top of the box is black, which helps heat absorption
- Suitable for a range of species including pipistrelle species, Myotis species, and brown long-eared bats.
- No maintenance required



Schwegler 2FN

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle species, Myotis species, serotine, brown long-eared, noctule and Leisler's bats
- Dual entrance
- Birds and dormice have also been found using this box
- A newer model is now available, Schwegler 3FN, designed with smaller entrance holes which discourage birds and dormice



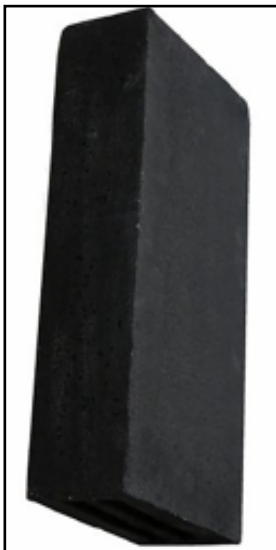
Schwegler 1FS Large Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of bats including pipistrelle species, Myotis species, Noctule, and brown long-eared bats
- Three grooved inner wooden panels are connected to the front panel, which are ideal for bats to cling to.
- Accommodates large summer colonies



Schwegler 1FF Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of crevice dwelling bats including pipistrelle species, barbastelle, noctule, and brown long-eared bats
- Rough wooden surface for bats to cling onto and climb



Greenwoods Ecohabitats Small Hollow Bat Box

- Manufactured from long-lasting ecostyrocete
- Lifetime - 20-25 years
- Suitable for a range of bats preferring a cavity space, including pipistrelle species, myotis species, noctule, and brown long-eared bats
- Suitable for hibernating bats



TYPES OF BIRD BOXES



Vivar Pro Seville 32mm WoodStone Nest Box

- Manufactured from woodstone - increases longevity and provides a consistent internal temperature
- The nest box compensates for the lack of natural cavities that are found in trees
- Suitable for blue tits, tree sparrows, house sparrows, great tits, crested tits, nuthatches, coal tits and pied flycatchers
- Should be installed between 1.5m and 3m high



House Martin Nest Cups



Swallow Nest Bowl

- Suitable nest building mud is difficult for house martins and swallows to find
- Alterations to house construction and roof design have resulted in a decrease of suitable nesting sites
- Install swallow nest bowls within an outbuilding or garage that has flight access - 6cm below the ceiling
- Install house martin nest cups under the eaves of a house - minimum of 2m high



Swift Nest Box

- Swift numbers are declining partly due to a loss of nesting sites
- The entrance hole discourages other birds such as starlings and sparrows
- Install a minimum of 5m high with unobstructed airspace in front of the nest
- Integrated models of swift nest boxes are also available



5KL Schwegler Nuthatch Nest Box

- Manufactured from woodcrete
- Nuthatches prefer nest boxes with larger cavities. They will often occupy owl nest boxes and fill the entrance hole with mud reducing the size to approximately 32mm
- Nuthatches plaster mud on the internal walls of the cavity and line the floor with wood chipping and leaves to nest
- To discourage nuthatches from using owl nest boxes try installing the 5KL immediately adjacent



Open-fronted Nest Box

- Manufactured from woodstone - lifetime of 20-25 years
- Suitable for robin, wren, spotted flycatchers, and black redstart
- Best installed hidden from view on the wall of a building or hidden within ivy/honeysuckle as the boxes open-front may attract predators
- Install at a height of 1-3m



Sparrow Terrace Nest Box

- Sparrow populations are decreasing due to a lack of nesting sites
- Sparrows are a sociable species and prefer to nest in a colony
- Likelihood of uptake is increased if more nesting chambers are available (the example nest box shown contains three nesting chambers)
- Various other nest box designs are available
- Install at a minimum of 2m high



Tawny Owl Nest Box

- Install on a mature tree within a woodland (not on the outskirts)
- Install a minimum of 3m high
- Face the box entrance away from prevailing wind (generally avoiding west/south-west)



Little Owl Nest Box

- Prefer areas of mixed farmland and orchards
- Essential features; small entrance hole (70mm), narrow tunnel, and a dark nesting chamber
- Install on a horizontal tree branch/wall top or beam so that owlets can walk in/out prior to fledging
- Can be installed on any tree species apart from cherry - the cherry harvest coincides with the little owl breeding season
- Entrance hole should face the tree trunk
- Install at a minimum height of 3m