



BJ Collins

PROTECTED SPECIES SURVEYORS

**PROTECTED SPECIES (BAT) SURVEY
&
BAT MITIGATION STRATEGY**

**OUTBUILDING
AT
ABBEYFIELDS FARM
STATION AVENUE
NEWSTEAD ABBEY PARK
NOTTINGHAM
NG15 8GE**

A report to:

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SUMMARY

This report has been prepared by BJ Collins – Protected Species Surveyors Ltd. The proposal is to restore the existing stone barn and replace the existing brick extension with a new barn of a similar form and mass to the existing but built using modern methods of construction and materials.

The building was examined as part of a preliminary bat roost assessment in April 2022. This survey identified evidence of bats within the structure and potential bat roost features and triggered the requirement for a minimum of two emergence and activity surveys over the active season, May to September.

The two follow-up bat emergence and activity surveys carried out in May 2022. The surveys identified that whilst the evidence present suggested use of the building by Brown long eared bats for night roosting and potentially a feeding perch, there was no such activity occurring during the survey period.

In support of the emergence and activity surveys there was a 21 night monitoring period using a remote monitoring detector and this also failed to identify the presence of Brown long eared bats using the building on a regular basis. The evidence remains that the structure is used on an ad hoc basis as a feeding perch for Brown long eared bats.

The emergence and activity surveys did identify a single Soprano pipistrelle emerging from out of the building. There is no evidence to suggest the building is used by a maternity colony, indeed there is a maternity colony in the adjacent building offsite.

All bat and their roosts are protected by both British and European law regardless of the status of the roost. To ensure operations remain lawful the proposal for the barn will require an EPS licence for roosting bats. As the building does not support a maternity colony and is used for roosting purposes by a species of low conservation significance the site is eligible under the Low Impact Class license scheme (CL21).

An application for an EPS licence can only be submitted to Natural England once planning permission has been granted and all conditions relating to wildlife have been formally discharged.

A mitigation strategy designed to protect roosting bats from harm during the works and the provision of alternative permanent roosting habitat, in the form of two enclosed bat tubes, has been provided in this document. The strategy includes the control of artificial light at night to ensure the new roosting habitat and existing commuting route remain available to roosting bats post development.

The interiors of the building used by at least one pair of breeding Swallows. The established nesting by this species will mean that legislation designed to protect breeding birds will pose a constraint to the time of year when the building can be redeveloped.

It is recommended that works to the building commence outside the bird breeding season which is variable in any given year but typically from March to September (inclusive). The ideal time to commence works would be from end of September and October when the birds have left and to ensure that the building is not accessible to birds the following year.

The provision of the car port in the proposal will include access to a roofing frame to enable Swallows to continue to nest at the site post development.

1 INTRODUCTION

This report has been prepared by BJ Collins – Protected Species Surveyors Ltd. for Allan Joyce Architects Ltd, Nottingham on behalf of the landowner Mr A Duffin. The proposed scope of works is to restore the existing stone barn and replace the existing brick extension with a new barn of a similar form and mass to the existing but built using modern methods of construction and materials.

The outbuilding is located at Ordnance Survey grid reference SK53185296.

This report includes the results of a preliminary bat roost assessment and two bat emergence and activity surveys undertaken in the active season for surveying bats in the summer of 2022 along with a bat mitigation strategy.

The legislation with regards to the protected species relevant to the site is provided below.

1.1 Legislation applicable to bats

All species of British bat and their roosts are protected under British law by the Wildlife and Countryside Act 1981 (as amended), and bats are classified as European Protected Species under the Conservation of Habitats and Species Regulations 2017 ('the 2017 Regulations'). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019) which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

The legislation makes it an offence to kill, injure or disturb a bat and/or to damage or destroy a breeding site or resting place for a bat. It is also an offence to disturb the animals such that it impairs their ability to survive, to reproduce, to nurture their young, or such that it impairs their ability to hibernate or migrate. Under this legislation development work that could affect a bat or bat roost can only be permitted under a licence from Natural England.

Licences in respect of European Protected Species affected by development can be granted under Section 55(2) (e) of The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019), for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment.

Under Section see Regulation 55(9) of the Regulations licences can only be issued if Natural England is satisfied that there is no satisfactory alternative to the work specification and the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range. Natural England aim to process EPS licence applications within 35 working days of receipt.

1.2 Legislation applicable to breeding birds

Under the Wildlife and Countryside Act 1981 (as amended), all native birds and their nests, whilst in use, are protected from harm, disturbance or destruction during the breeding season. To avoid conflict, development work that could affect breeding birds should be timed to take place outside of the breeding season, variable between March and September. Note that a nest is protected from the beginning of its construction until the young have fledged and have left the nest.

2 SITE DESCRIPTION

The outbuilding is situated at the end of the access drive leading from Station Avenue and to the north west of the former farm house of Abbeyfields Farm in Newstead Abbey Park. To the west is a stable block and coach house that has been converted to residential use and farm buildings which are outside the survey area. The parkland landscape offers extensive habitats including ancient woodland, broadleaved woodland, large water bodies and parkland landscape containing mature trees which are of value to bats in terms of providing foraging and roosting opportunities along with connectivity with the wider landscape.

Less than 0.5km to the east of the survey area is Linby Quarries and Gold Wood Sites of Special Scientific Interest (SSSI). The site is designated for the quality of the semi-natural woodland and calcareous scrub and vegetation associated with the pools of the former limestone quarry.

A search of the government's Magic website for EPS licences granted for the disturbance or destruction of a bat roost based upon a 2.5km radius of the site identified once licence issued for works impacting on a Soprano Pipistrelle (*Pipistrellus pygmaeus*) maternity roost located 1.5km to the south west of the survey area.



Photograph 1: Situation of outbuilding and survey area at Abbeyfields Farm, Newstead Abbey Park

2.1 Description of outbuilding

The outbuilding consists of two attached sections. At the south aspect is a more traditional barn building which contains stables constructed from stone and brick and is covered with a pitched roof. At the north aspect is row of garages constructed from brick with a half pitched roof covered with corrugated steel sheets. Attached at the west aspect is a store cupboard constructed from timber with a half pitched roof covered with interlocking concrete tiles underlined with bitumen felt. The garages and timber store are outside the survey remit.

The timber roofing frame is a traditional purlin and rafter structure. The roof covering is comprised of interlocking concrete tiles and is underlined with bitumen felt. The gable verges are sealed with mortar. The eaves at the south elevation are finished with timber soffits. A timber wall plate is present at the north eaves. Timber lintels have been set in the exterior walls at the west gable and the north wall.

The south elevation contains a large opening which provides access to two stables. At the east and west end of the building there are single cells with attic spaces above which are divided by walls which do not reach the full height of the roof. The stables are open from the ground to the underside of the roof covering and it is possible for a flying animal to access the roof voids at either end of the building over the top of the dividing walls.



Photograph 2: South aspect and east gable of outbuilding at Abbeyfields Farm, Newstead Abbey Park



Photograph 3: West aspect of outbuilding



Photograph 4: Attic space at west end of traditional part of outbuilding

2.2 Description of immediate surrounding area

The outbuilding is surrounded by hard-standing at all aspects which includes the yard at the north aspect, the access drive at east and the courtyard associated with converted coach house and stables with the west. As the south aspect is the yard and gardens associated with the former farmhouse.

The drive leading from Station Avenue is lined with trees offering a potential commuting route to and from the site. Beyond the buildings and areas of hard-standing the landscape is comprised of arable and grazed fields which are encompassed by deciduous woodlands.



Photograph 5: Landscape to north east of survey area

3 SURVEY METHODOLOGY

3.1 Preliminary bat roost assessment

A visual inspection of the outbuilding was undertaken by an experienced licenced bat ecologist on 11th April 2022. Equipment used included powerful torches, camera, binoculars, and telescopic ladders. The objective of the survey was to inspect the building for evidence of bat-use and to identify features that could potentially support roosting bats and to assess the likelihood of these features being used. This included looking for droppings, urine staining, worn surfaces and the bats themselves (alive or dead).

3.2 Static acoustic monitoring

A remote detector and recorder, a Song Meter Mini Bat, was installed in the east attic of the outbuilding from 11th April 2022 to 3rd May 2022.

3.3 Bat emergence and activity survey 4th May 2022

The survey was completed by two surveyors. The first surveyor (MM) was positioned at the south east corner of the outbuilding and the second surveyor (AR) was positioned at the north west corner. The hand-held equipment used by the surveyors included two Pettersson D240X detectors coupled with digital recorders and an Echometer Touch 2.

A digital video camera supported with infra-red lighting was used to film a potential roost feature at the north elevation.

The survey commenced at sunset at 20:38 and lasted 90min. Ambient temperature was measured with an ETI Hygro-Therm hygrometer.

3.4 Bat emergence and activity survey 26th May 2022

The survey was completed by two surveyors. The surveyors adopted the same positions as the previous survey. The hand-held equipment used by the surveyors included a Pettersson D240X detector coupled with a digital recorder and an Anabat Scout. All observations of bat activity were documented.

A digital video camera supported with infra-red lighting was used to film the roof void and dividing wall of the east attic. A Song Meter Mini Bat detector was placed with the camera. A Guide-pro 19 Thermal Imager was used to film the south elevation.

The survey commenced prior to sunset at 21:13 and lasted 93 min. Ambient temperature was measured with an ETI Hygro-Therm hygrometer.

3.5 Breeding birds scoping survey

Evidence of breeding birds was documented ahead of the bat emergence and activity survey on 4th May 2022.

3.6 Scoping survey for protected species

An ecological walkover of the immediate surrounding area was undertaken to assess the habitat for other protected species on 11th April 2022.

3.7 Survey constraints

There were no constraints to the preliminary bat roost assessment, the surveyor was able to access all parts of the outbuilding.

During the first emergence and activity survey the surveyor (AR) positioned at the north west corner of the outbuilding was distracted by a concerned neighbour. The surveyor was able to continue watching the survey building but was unable to pin point roost locations on the building nearby. This constraint was addressed prior to the second emergence and activity survey.

3.8 Survey intensity

The findings of the preliminary bat roost assessment undertaken in April 2022 did locate evidence of use by bats. The building was assessed as being of moderate potential of supporting roosting bats and two follow up bat emergence and activity surveys were recommended in accordance with the national survey guidelines published by the Bat Conservation Trust (2016).

3.9 Weather conditions

The weather conditions for the two bat emergence and activity surveys carried out in the active season of 2022 are provided in the table below. Wind strength was assessed using the Beaufort Scale.

Table 1: Weather conditions for bat emergence and activity surveys of the outbuilding at Abbeyfields Farm, Newstead Abbey Park Summer 2022

Date	Temperature at sunset	Temperature at finish	Conditions
4 th May 2022	13.6°C	10.4°C	Dry. Clear sky. Wind 2/3.
26 th May 2022	14.1°C	11.5°C	Dry. Estimated 40% cloud cover. Wind 2/3.

3.10 Personnel

The visual inspection of the building undertaken on 11th April 2022 was carried out by P. A. Collins (Natural England Class Licence: 2021-52948-CLS-CLS). The subsequent bat emergence and activity surveys were led by M. Mackinnon (Natural England licence no. 2015-16652-CLS) with A. Roe (Natural England licence no. 2015-12980-CLS) and P. A. Collins.

4 SURVEY RESULTS

4.1 Preliminary bat roost assessment results

Prior to the commencement of the survey, the landowner provided anecdotal reports roosting bats within the western end of the stables and had strung up a sheet to catch droppings from falling onto their belongings below.

The search identified droppings upon this sheet, which remained unmoved, of the shape and size of those typically voided by Brown long-eared bats (*Plecotus auritus*). A scattering of droppings was also found in the attic space at the eastern end of the stables along with the feeding remains of Yellow Underwing moth which is characteristic of gleaning bat species such as Brown Long-eared bats. There is ease of access into the interior of the pitched roof section of the building via the stables at the south elevation. The gaps at the top of the dividing walls means it is possible for a flying animal to access either of the attic spaces.

The inspection of the exterior fabric of the building identified gaps in the stonework where the mortar has deteriorated resulting features with potential to support crevice dwelling species such as Common Pipistrelles. At the west gable the timber lintel has shrunk resulting in gaps around the lintel which have potential to appeal to roosting bats. As with the stonework there are areas of deteriorating mortar in the brickwork resulting in crevices.

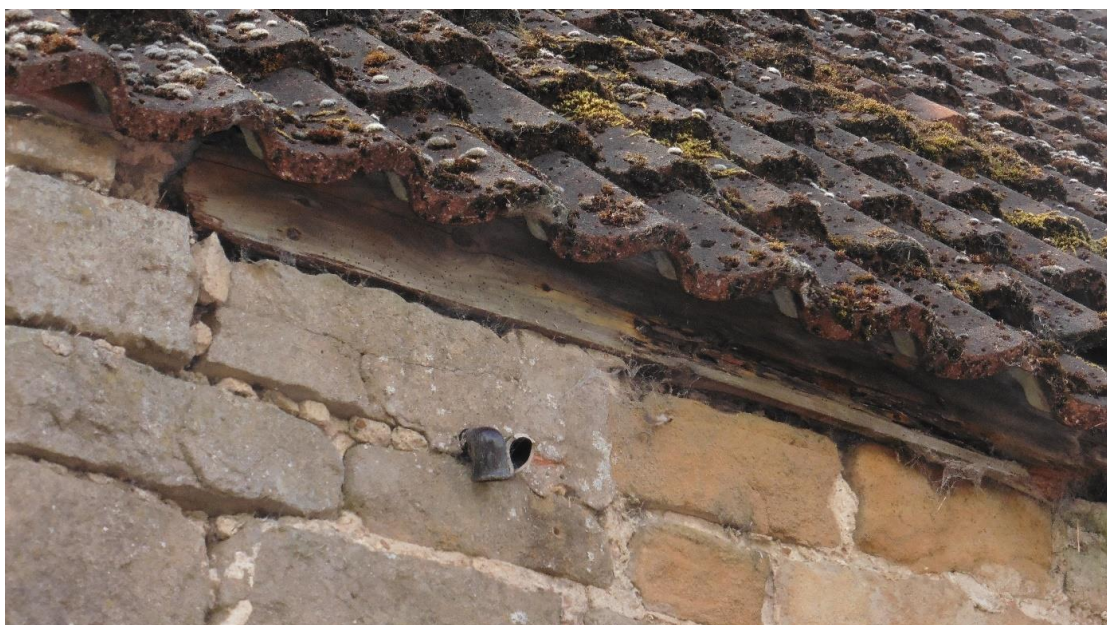
At the north elevation there is a section of exposed timber wall plate of the pitched roof section. This timber has also shrunk resulting in gaps which were cobwebbed at the time of the first emergence and activity survey indicating this feature has not recently been used for roosting purposes.



Photograph 6: East gable with gaps in stonework due to erosion of mortar



Photograph 7: West gable with deteriorating mortar in brickwork and gaps around timber lintel



Photograph 8: Exposed wall timber wall at north elevation

4.2 Results: Static acoustic monitoring

A review of the ultrasonic bat calls recorded by the remote detector, which operated between 11 April 2022 and 3 May 2022 comprising 21 nights of monitoring and approximately 190 hours of night time monitoring, found that there was no activity by Brown Long-eared bats inside the east attic of the pitched roof section of the outbuilding. The detector did record calls by Common and Soprano Pipistrelles the majority of which coincided with sunset.

Used in conjunction with the findings of the preliminary bat roost assessment and the observations made from the bat emergence and activity surveys it is the conclusion that these calls are a result of Pipistrelle bats commuting past the outbuilding.

A total of 450 bat ultrasonic calls were recorded which were mainly from the Pipistrelle genus with one Brown Long-eared echolocation call detected on 14th April 2022.

4.3 Results: bat emergence and activity survey 4th May 2022

No bats were observed emerging from the outbuilding during the survey. A total of 37 observations of bat activity were documented by the two surveyors. The first bat detected was a Common Pipistrelle at 21:04 by both surveyors. The bat flew south to north past the west aspect of the building.

Between 21:04 and 21:11 six bats, all Common Pipistrelle, were observed coming from the former coach and stable yard to the south west of the survey building and either commuting north past the west aspect or over the roof the survey building and heading north east. Three of these bats were observed emerging from a building outside the survey area by the surveyor (AR) positioned at the north west aspect. The roost location is underneath a piece of lead flashing that seals the junction between the dormer window above the garage located at the northern end of the east projection of the converted stables and coach house (see photograph below).

Most of the bats detected were Common Pipistrelle, other species recorded included Soprano Pipistrelle and Brown Long-eared. Most of the activity by the Pipistrelles was assessed to be commuting with a period of social calling from 21:44 onwards until the end of the survey.

At 21:36 a Brown Long-eared bat was observed circling at eaves height at the south elevation by the surveyor (MM) at the south east aspect. At the same time the surveyor observed a Brown Long-eared bat flying north west away from Abbeyfields Farm. It is assumed this is the same bat.

A review of the footage recorded by the digital video camera of the timber wall plate at the north elevation of the pitched roof section found that no bats emerged from this feature during the survey.



Photograph 9: Location of roost utilised by 3 Common pipistrelles on the adjacent building (outside survey area) 4th May 2022

4.4 Results: bat emergence and activity survey 26th May 2022

A review of the footage from the thermal imaging camera of the south elevation identified a Soprano Pipistrelle emerging from the west side of the frame of the opening at 21:51. The bat was determined to species level by the echolocation recorded upon emergence by the surveyor (PC) positioned at the south east corner of the outbuilding.



Photograph 10: South elevation of outbuilding at Abbeyfields farm with location of day roost of Soprano Pipistrelle indicated as identified during bat emergence and activity survey 26th May 2022

A total of 48 observations of bat activity were documented by the two surveyors. During the first half the survey most of the activity recorded was of Common Pipistrelles commuting past or over the outbuilding. The majority of these bats headed north east.

A roost site was located in the converted coach and stable block situated to the south west outside the survey area. The roost location is indicated in the photograph below. Approximately 43 Common Pipistrelle bats emerged from this area during the survey. This number of bats utilising a single roost during summer is characteristic of a maternity roost.

For the second part of the survey a wider diversity of species was recorded which included activity by Soprano Pipistrelle, Noctule and Brown Long-eared bats.



Photograph 11: North elevation of converted coach house and stables situated to the south west of the survey area with location of Common Pipistrelle maternity roost indicated as per bat emergence and activity survey 26th May 2022

4.5 Scoping survey results: breeding birds

An active Swallow (*Hirundo rustica*) nest was found in the pitched roof section of the outbuilding. A Wren's (*Troglodytes troglodytes*) nest was also found constructed on top of previous Swallow nest.

The open nature of the building at the south aspect means that the interior is easily accessible to breeding birds.

A sighting of a Barn Owl flying past the building was documented during the bat emergence and activity survey on 26th May 2022. There is no evidence in terms of pellets or urine splashing that this species has used the interior of the outbuilding for either nesting or roosting purposes.

4.6 Scoping survey results: other protected species

No field signs associated of other protected species were identified during the visual inspection on 11th April 2022.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Bats

It is the conclusion of this report that based on the results of the bat emergence and activity surveys that the pitched roof section of the outbuilding supports day roosting by an individual Soprano Pipistrelle.

The results of the preliminary bat roost assessment in conjunction with the anecdotal reports offered by the landowner identified that the building in the past has supported roosting and been used as a feeding perch by low numbers of a gleaning species of bat such as Brown Long-eared.

There is no evidence to suggest any part of the building supports a maternity colony for either species in terms of the quantity of bat droppings found and the numbers bats observed using the outbuilding during the surveys.

It is significant that a maternity colony of Common Pipistrelles are roosting in a nearby building outside the survey area. This species is renowned for roosting switching behaviour and consequently there is a risk that individual bats may use the outbuilding as a transitional roost site at a different time of year such as late August/early September when bats are dispersing from their summer roosts.

The survey can say conclusively that as a minimum the redevelopment of the outbuilding to residential use will result in the disturbance and the destruction of a roost site used by an individual Soprano Pipistrelle and consequently an EPS licence will be required in advance of works to the traditional pitched roof section of the outbuilding. **An application for an EPS licence can only be issued by Natural England once planning permission has been granted and all conditions relating to wildlife species have been formally discharged.**

As the outbuilding does not support a maternity roost or rare species the site is eligible for registration under the Bat Low Impact Class License scheme (CL21).

A Low Impact Class licence is valid for a period of three months from the time it is issued. If the redevelopment of the building were delayed until May 2023 then further emergence and activity surveys would be required to satisfy Natural England that no maternity roost is present.

The licence application needs to contain an adequate mitigation strategy for bats. Key elements of a mitigation strategy are to safeguard individual roosting bats from harm during the construction phase and provide alternative permanent roosting habitat within the redeveloped building. A bat mitigation strategy has been provided in the next section of this report.

5.2 Breeding birds

In the summer of 2022 the outbuilding supported one pair of breeding Swallows. For operations to remain lawful to ensure the breeding birds are not disturbed it is recommended that the building is redeveloped outside the bird breeding season which is variable between March to September inclusive in any given year.

To provide continuity of nesting bird habitat the timber roofing frame of the car port of the proposed building is to be made available to nesting Swallows. It is recommended that a partial floor is installed within the roof void of the car port to protect any parked vehicles from droppings. Access should be provided around the sides of the floor to enable the birds to fly in and up to the nest sites.

6 BAT MITIGATION STRATEGY

6.1 Application for an EPS licence

For operations to remain lawful the redevelopment of the outbuilding will require an EPS licence issued by Natural England.

As there is no maternity colony present and the site is used for roosting purposes by low numbers of common species the site is eligible for a licence under the Low Impact Class Licence scheme.

An application for a Low Impact Class licence can only be submitted once planning permission has been granted and any planning conditions relating to wildlife species have been formally discharged.

A Low Impact Class licence is valid for a period of three months from the time it is issued. If the redevelopment of the building is delayed until May 2023 then further emergence and activity surveys would be required to satisfy Natural England that no maternity roost is present.

6.2 Timing of works

At the time of the 2022 surveys the outbuilding is used for roosting purposes by an individual adult bat likely to be a male or non-breeding female which will be physiologically able to tolerate disturbance when bats are deemed to be active, generally from March to mid-November. However, as the building supports breeding Swallows it is recommended works are timed outside the nesting season with the end of September/October the ideal time to commence works.

6.3 Safeguarding of roosting bats from harm during construction

Upon the granting of a Low Impact Class licence a tool box talk is to be given to the building contractors by the licenced bat worker in advance of works commencing to the building. This will include a description of potential roost areas, activities that require supervision by a licenced bat worker in accordance with the license and what do if a roosting bat is found.

In advance of works commencing the building a timber bat box is to be installed on a tree or structure away from the construction site. The purpose of the box is to temporarily house any bats found during the works.

The removal of any roof coverings and the bitumen roofing membrane are to be supervised by a licensed bat worker, likewise the cart door frame and the brick work surrounding the cavity used by the bat for roosting must also be dismantled with great care and by hand and under the supervision of the bat ecologist. Any bats found during this process are to be transferred by hand to the timber bat box by the licenced bat worker.

If the roofs are to be retained it will be necessary for a licenced bat worker to undertake an inspection on the day of any planned works to the roof, roofing frame or membrane to ensure no roosting bats are entombed. If the roofs are to be retained then as they are underlined with a material that is dangerous to roosting bats, a new high spec insect screen should be installed at eaves level to prevent bat access in from this location. This requirement should be agreed on site at the time that works commence.

Once the openings are sealed *i.e.* the installation of windows and doors then it will be necessary to use a one-way exclusion device to ensure a bat can leave the redeveloped building but will be unable to return. This procedure will need to be accompanied by a period of static acoustic monitoring to ensure no bats remain roosting inside the building.

In line with best practice a procedure has been supplied in Appendix 1 of what to do if a roosting bat is found during works when an ecologist is not present.

6.4 Permanent roosting provision

To conserve the bat species roosting at the site it is recommended that two enclosed bat tubes are installed in the exterior walls of the redeveloped building. The bat tubes will provide an enclosed roosting environment. An example of an Istock enclosed bat box is provided below, other makes and finishes are available. The facade of the box is to sit flush with the exterior wall as such a bat can land on the wall below and crawl up to the access slot. The box locations must be agreed with the ecologist before installation and should include a box on the south to southwest side and west to north sides of the building, as the final elevations allow.



Figure 1: An example of an enclosed bat box, Istock bat box C

6.5 Control of artificial lighting at night

Plants and animals rely on natural rhythms of light and dark, along with seasonal and lunar changes in light levels to regulate life-sustaining behaviours. Artificial lighting negatively impacts bats in a variety of ways affecting roosting, foraging, swarming, reproduction, commuting and hibernation behaviours.

Artificial lighting has a vacuum effect on attracting flying insects away from habitats that they would naturally be in, this in turn attracts some bat species such as Common Pipistrelles and Noctules to feed on these insect aggregations. Although this initially seems beneficial to bats, artificial lighting at night has wider ripple effects that are detrimental to bat and invertebrate populations. This is due to the attraction of invertebrates away from habitats which support bat species that are not able to compete or forage in lit areas. These include Long-eared bats.

Lighting should be directed to where it is needed and all roost access features, commuting routes and green infrastructure should remain unlit at night. This will be a requirement of the EPS licence. Every effort should be made to contain light spill and reduce the duration of any exterior lighting.

To comply with the licence requirements it is important that the two enclosed bat boxes are not illuminated by exterior lighting at night to ensure they remain available as roosting habitat for bats.

The results of the 2022 emergence and activity surveys identified that the Brown Long-eared bat commuted from the building to the Oak tree situated at the south east corner of the site and consequently it is important that the garden situated at the south aspect of the proposed building remains unlit at night. The surveys also identified that the hedge to the west of the building was used for foraging purposes by Common Pipistrelles and therefore this also should remain unlit at night.

The following recommendations for mitigation of artificial lighting have been extracted from the Guidance note 08/18: Bats and Artificial Lighting in the UK produced by the Bat Conservation Trust and Institution of Lighting Professionals (2018).

- Lighting units should use LED which emit a warm white light (less than 2700K) to reduce the blue light component known to attract insects.
- Lighting units should feature peak wavelengths 550nm to avoid the component of light that is most disturbing to bats
- Lighting units should be mounted horizontally as such there is no upward tilt
- External security lighting should be motion sensitive on a short timer (1 min)

7 REFERENCES

Collins, J. (ed) (2016) **Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition**, Bat Conservation Trust, London.

Institution of Lighting Professionals & Bat Conservation Trust (2018) **Guidance note 08/18: Bats and Artificial Lighting in the UK**, Institution of Lighting Professionals, Rugby.

Waring S.D., Essah E.A, Gunnell K., and Bonser R.H.C., (2013) Double Jeopardy: The Potential for Problems when Bats Interact with Breathable Roofing Membranes in the United Kingdom. **Architecture & Environment**, 1 (1): 1-13.

7.1 Appendix 1: Procedure for if a bat is discovered during works when an ecologist is not present

- If at any point in the building works bats are discovered then contractors must stop work immediately and telephone B J Collins Protected Species Surveyors on 01636 830058 or 07957 122217.
- B J Collins PSS will either provide an appropriately licensed bat worker to the site or provide a member of staff who will liaise directly with the contractor. Actions will then be taken following advice given. This may include removal of bats, but only where the bat ecologist considers this to be a viable and safe option.
- Bats are a protected species and there should be no attempt to handle a bat if discovered. The bat should be covered with a light material (cloth) and the bat worker called out to carry out the rescue.
- Only when the bat ecologist is satisfied that the risk to bats is ceased will works recommence.
- Should it transpire that the operation being carried out is of more risk to bats than was originally thought, then works will be stopped until they can be supervised by an appropriately licensed bat worker.
- If a bat is found under a tile or within any other niche to the building fabric, works will stop immediately (as above). If the bat does not voluntarily fly out, then the aperture will be carefully covered over to protect the bat(s) from the elements, leaving a small gap for the bat to escape voluntarily. Any covering should be free from grease or other contaminants and should not be a fibreglass-based material.