

Internal /External Bat Survey

Bradwardine

LE9 2BQ

Client: Arthur McDonagh



Surveyor: Dr. Stefan Bodnar BSc (Hons) PhD MCIEEM Bat license, Class License CL18 (Survey level 2) CLS01159

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1.0. Introduction

A single storey detached house comprising Bradwardine, Kirby Muxloe LE9 2BQ and outbuildings (stables) was subject to survey in relation to the potential for presence of bat species and roost sites in relation to works, which will result in demolition of the existing building and other structures. (refer to Planning Application).

The brief of this survey was as follows;

- An external/Internal evaluation of the buildings for utilization signs by bat species.
- To determine whether any buildings and trees within the site had potential for use by bats for roosting or as a place of shelter, with consequent implication for development work with respect to Schedule 5 of the *Wildlife and Countryside Act 1981 and the conservation (Natural Habitats &c.) Regulations (and subsequent amendments)*.
- To determine the presence of any roosts within the site.
- To make an overall assessment of the value of the site as foraging, feeding and commuting areas.
- To make recommendations for the development work to take place including any mitigation/ compensation required.

Background

Bats and the Law

Prior to August 2007, all bat species in the UK were fully protected under the *Wildlife and Countryside Act 1981* (as amended) through an inclusion in Schedule 5. The amendment of the *Conservation (Natural Habitats) Regulations 1994*, in August 2007 now is the regulatory protection mechanism. In addition there are obligations within the Conservation of Species and Habitat Regulations (2017) and National Planning Policy Framework (2023) which replaced the former Planning Policy Statement 9 (PPS 9).

In England, Scotland, Wales and Ireland all bat species are fully protected by the Conservation (Natural Habitats &c.) Regulations, which defines 'European protected species of animals' (EPS). This gives protection to bats and their roosts.

The Regulations have slightly different amendments in the different countries. Under the regulations it is an

offence to:

- a) Deliberately or recklessly to capture, injure, or kill a EPS.
- b) Deliberately or recklessly –
 - i. To harass a wild animal or group of wild animals of a EPS.
 - ii. To disturb while it is occupying a place of shelter (roosts).
 - iii. To disturb while it is rearing its young or caring for its young.
 - iv. To obstruct access to a breeding site or resting place, or otherwise deny the animal use of that site or resting place.
 - v. To disturb a EPS in a manner that is, or circumstances which are likely to significantly affect the local distribution or abundance of the species.
 - vi. To disturb a EPS in a manner that is, or circumstances which are likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for young.

In this interpretation, a bat roost is “*any structure or place which any bat uses for shelter or protection*”. As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time.

Planning and Development

All British bat species and their roosts are protected under the Wildlife and Countryside Act 1981, through inclusion on Schedule 5. They are also protected under the Conservation (Natural Habitats &c.) Regulations 1994 (which were issued under the European Communities Act 1972), through inclusion on Schedule 2.

The Act and Regulations include provisions making it illegal to:

- ✓ Intentionally or deliberately kill, injure or capture bats.
- ✓ Deliberately disturb bats.
- ✓ Damage, destroy or obstruct access to a roost.

Local Planning Authorities consult the Government’s guidance notes, National Planning Policy Framework (2023) and the Conservation of Species Habitat Regulations (2017) in England, and equivalents in Scotland and Wales, before making a planning decision where there may be protected species on a site.

The presence of a protected species should be a material consideration when considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat. If bats use the site, appropriate Statutory Nature Conservation Organization (Natural England, Scottish Natural Heritage or Natural Resources Wales) must be consulted before any work is carried out. Where necessary, a bat expert should visit and assess the site.

If planning permission is being sought from the local authority, any observations of bats should be reported to them and they can be reminded of their obligations within the National Planning Policy Framework (2023). If a bat roost is present and is affected by a proposed development, licensing will be required from the Statutory Nature Conservation Body, in England this is Natural England.

The Legislative Process (England)

In determining whether or not to grant a license Natural England must apply the requirements of Regulation 535 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)6 .

(1) Regulation 53(2)(e) states: a licence can be granted 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”.

(2) Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.

(3) Regulation 53(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”

In determining applications for licenses under the Regulations Natural England is also aware of and, where appropriate, has regard to the following:-

☐ Planning Policy Statement 9 ☐ Circular 06/05 “Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System”

☐ Circular 2/2002 New Guidance for Local Planning Authorities on European Protected Species and Changes in Licensing Procedures

the EU Guidance Document on the protection of animal species: February 2007, Managing Natura 2000, EU Guidance Document on Hunting under Council Directive 79/409/EEC on the conservation of wild birds (Chapter 3) and The Report of the Article 12 Working Group under the Habitats Committee “Contribution to the interpretation of the strict protection of species (Habitats Directive article 12)”.

Developers need to be aware that:

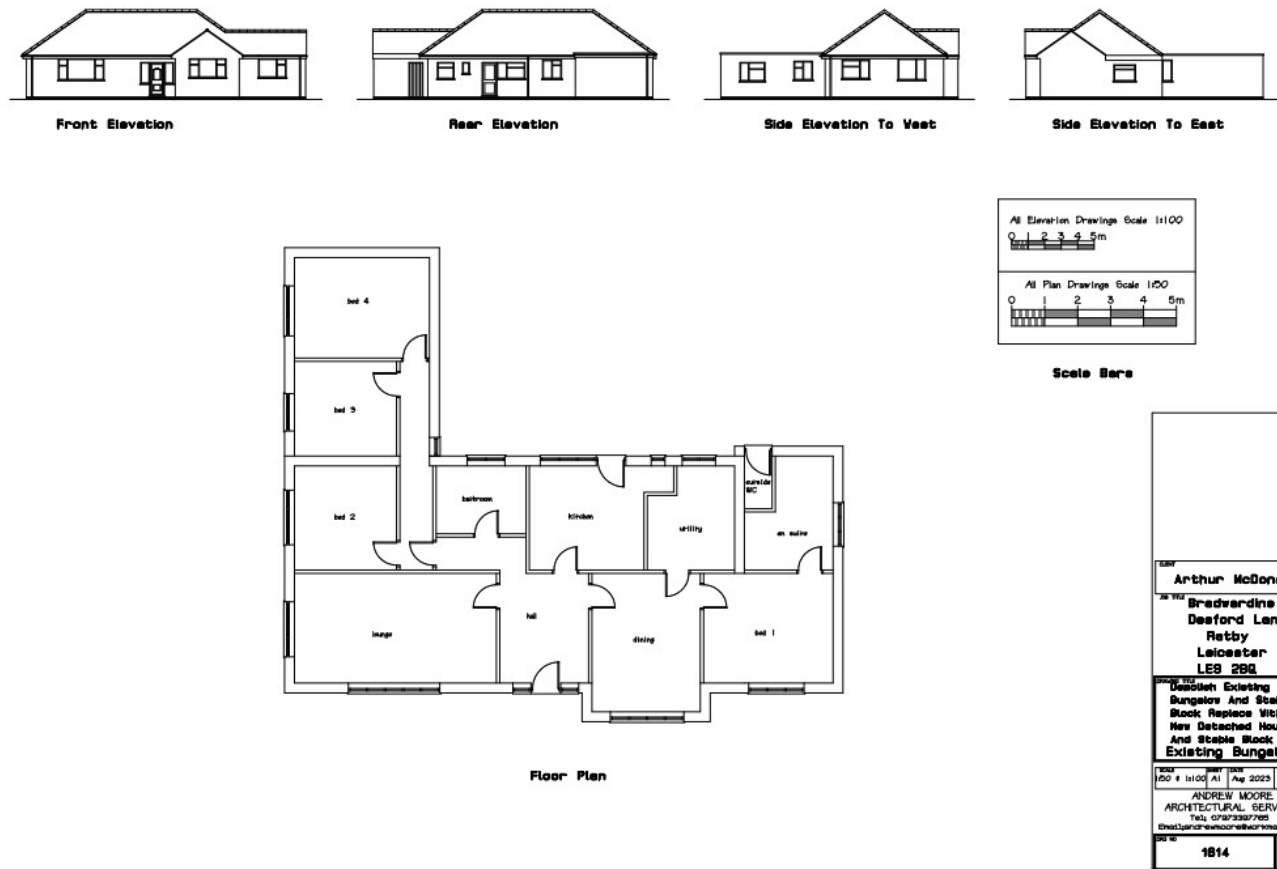
- Assessment of current use, likely effects and mitigation or habitat enhancement should be incorporated into development proposals at an early stage.
- Where changes in land use could affect bats, the implications to bats should be considered and advice sought.
- When considering planning applications, authorities are required to take account of protected species, including all bats, and their habitats.

Bat feeding habitats can be some distance from their roost sites, therefore, bats seen in flight may roost nearby or some miles away. Bats use a range of sites for roosting, including buildings and trees. Signs of roosts, which are visible from the outside, include bats emerging from the roost (timing varies from before sunset to up to about an hour after) and bat droppings on surfaces near emergence points.

1.1. Site Location

Bradwardine, Kirby Muxloe LE9 2BQ All internal and external areas were available for survey.





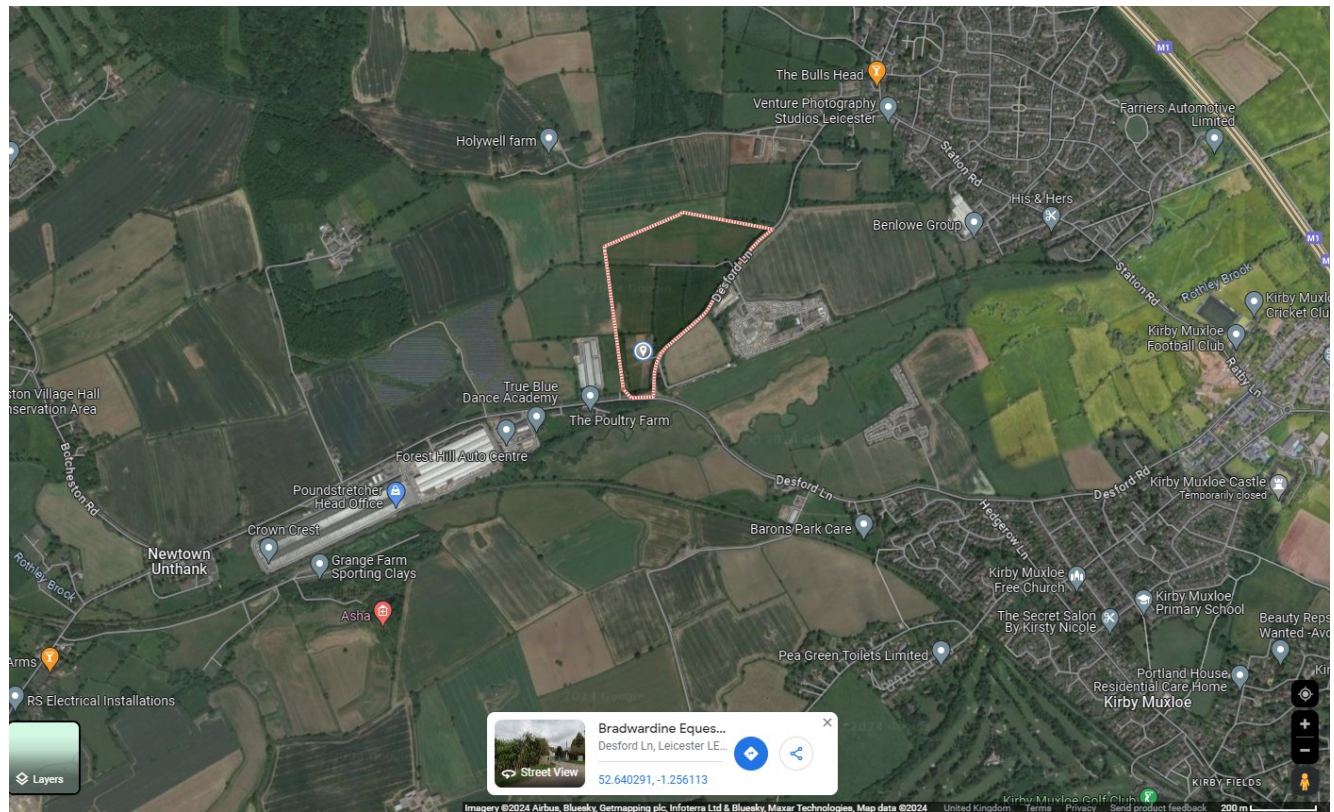
1.2. General Site Description and Status

The site comprised a 1950s detached, brick bungalow, rendered no cavity wall, with pitched concrete tile roof and concrete ridge. Roof with hips (concrete tiles on hips). Intact wooden soffits remain throughout main building. Garage to side, no loft or cavity wall, similar structure though with replaced UPVC soffits and fascias. The main roof is with bitumen felt lining beneath the tiles and the loft space extends to approximately 3m at apex, boarded. The stables are blockwork, no cavity or loftspace with wooden frame roof and mineral felt cover. Appendix 1 shows aerial photographs and Appendix 2: site images.



1.3. Wider Landscape Context in Relation to Bats

The site lies near to the settlement of Kirby Muxloe, the key habitats and landscape features for bats within the immediate area are likely to be the surrounding agricultural land, with hedgerows and small woodlots. The surrounding habitat also provides some reasonable quality habitat for roosting, foraging and commuting bats Appendix 1 and below shows aerial photographs and Appendix 2: site images.



1.4. Bat Ecology (a Summary)

Where do bats build roosts?

Different species of bat prefer different places; some creep into tiny spaces, cracks and crevices. Only occasionally do they hang free or are easily visible.

Outside they may roost:

- Under weather boarding or hanging tiles
- Above soffits and behind fascia and barge boarding
- Between window frame and wall brickwork
- In gaps behind cladding tiles or wood
- Between underfelt and boards or tiles
- Inside cavity walls

Inside roof spaces they may roost

- Along the ridge beam
- Around the gable end
- Around the chimney breast

Looking for the evidence

Bats do not make nests or cause structural damage. The most obvious sign of their presence is droppings.

- Bat droppings consist largely of insect remains and crumble easily between your fingers to a powder of semi-shiny fragments.
- Rodent droppings are smooth and plastic, quickly becoming hard. They cannot be crumbled.
- Bat droppings do not present any known health hazards.
- Droppings may not always be readily visible in a loft.
- Large accumulations may reflect use over a number of years rather than large numbers of bats at any one time.

When do bats use buildings?

Bats use buildings at any time, but are most often found in houses between May and August.

- Mother bats have only one baby a year, suckling it for several weeks. The mothers gather in maternity roosts to have their young in summer, and this is the time they are most likely to be seen using buildings.
- The bats move away when the young can fly and feed themselves, and have usually left by September.
- Immature individuals, adult males and non-breeding females will occupy a variety of roosts, individually or in small groups, at any time of year.
- Disturbance or the use of chemicals at maternity roosts in houses can have a major impact on bat populations gathered from a wide area.
- Bats do roost in houses in winter, usually individually, but are difficult to see.

Which bats use buildings?

All UK species have been recorded in houses, but some very rarely. Pipistrelles and Long-eared

bats are the species most usually found.

Pipistrelle bats

There are three different species of Pipistrelle; the common Pipistrelle, Soprano Pipistrelle and the rarer Nathusius' Pipistrelle. They sometimes use houses as maternity roosts, choosing confined spaces. These are usually on the outside of buildings, such as under the soffits or behind barge boards or hanging tiles, where the bats can rarely be seen.

Brown long-eared bats

This species mostly prefers older houses with large roof spaces. Small clusters may be seen at junctions of roof timbers or under the ridge. It is the bat most frequently seen inside lofts, small numbers may stay longer than the other species.

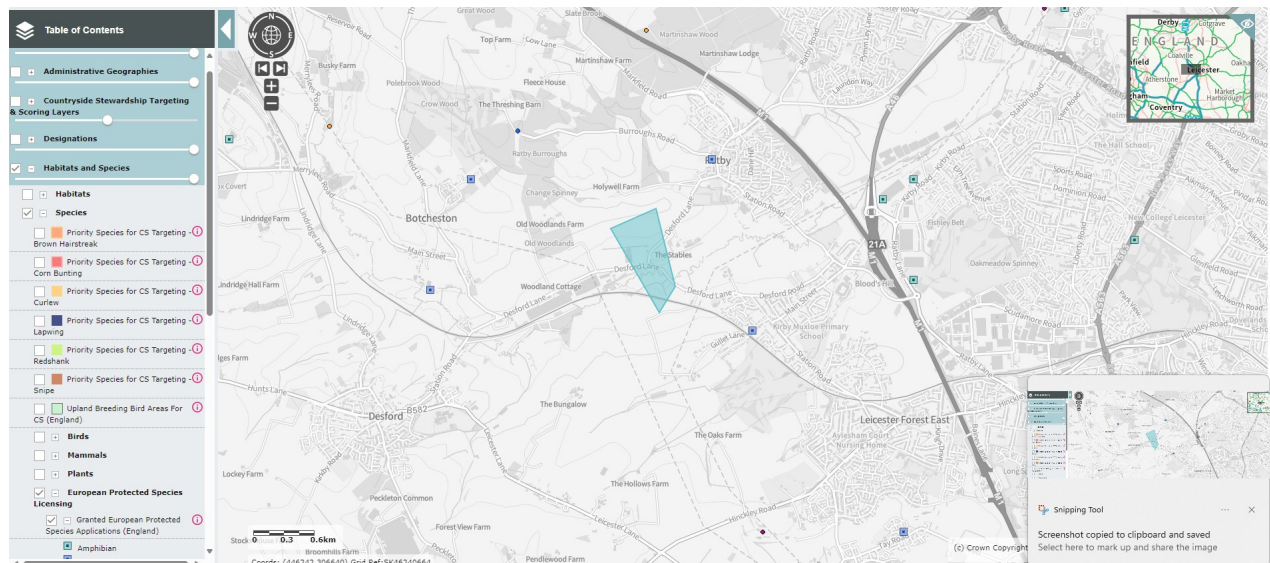
1.5. Description of Works

Refer to Planning Application. The existing building will be demolished.

1.6 Bat Species Records

In relation to bat species the following were recorded from various web based data sources, the authors own records,) and other sources, presented here with the approximate distances of the nearest record. In addition, a number of Ecological survey reports within the area have been interrogated for protected species records. All records are post-2000 unless otherwise stated. In this case all records derive from the Natural England 'MAGIC' site accessed on 2nd February 2024.

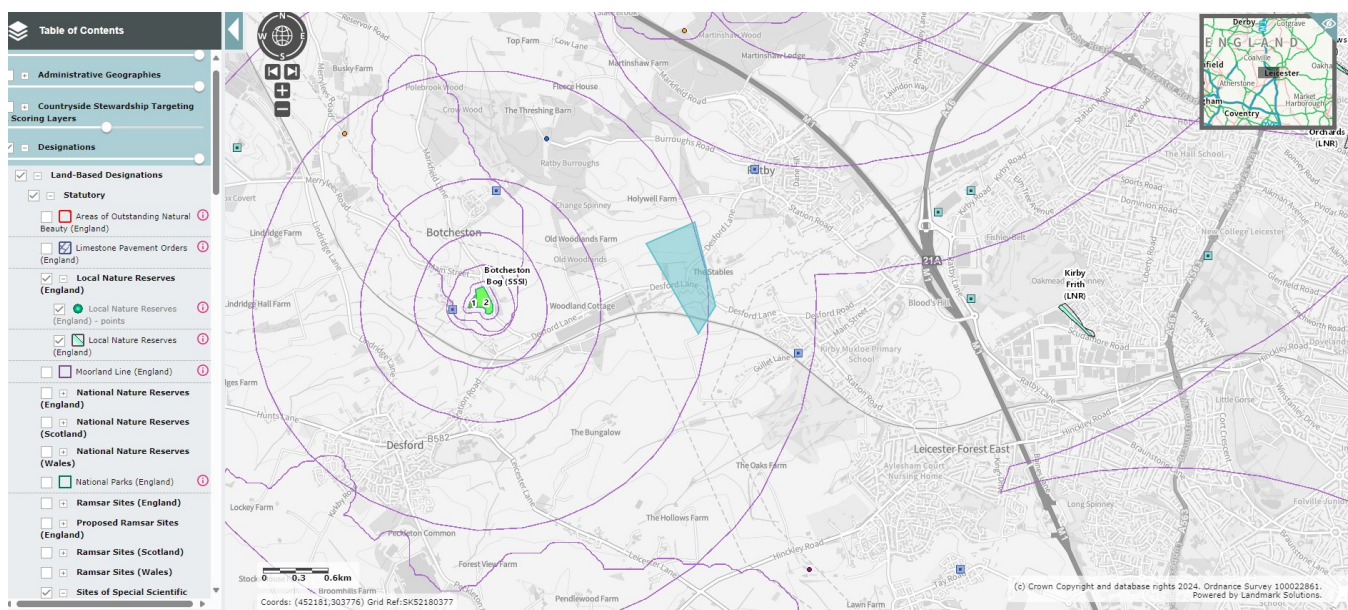
EPSM Search (Source: Magic)



An EPSM search revealed that there are roosts of Common pipistrelle bat within 1km, with Brown long eared bats roosting within 2km. There are other species recorded at further distances though these are at too far distances to be relevant here. See above (blue squares are bat roosts).

Protected sites: (Source: MAGIC)

The nearest Statutory protected site is Botcheston Bog SSSI which lies within 2km W. (see below).



2.0. Survey Methodology

The survey consisted of two elements:

- A day-time visual external assessment of the buildings and their potential in relation to use by bats as roosts.
- A day-time visual internal assessment of the buildings and their potential in relation to use by bats as roosts

2.1. Personnel

The survey was conducted by Dr. Stefan Bodnar, assisted by Dr. Louise Sutherland. Dr. Stefan Bodnar is a full time member of the Chartered Institute of Ecology and Environmental Management, an experienced ecologist with over 35 years experience of bat surveys, working under Natural England class license: Level 2, survey: bats.

2.2. Visual External Assessment

The external building inspection (from the ground using binoculars) focused particularly on roof areas, soffits, areas of wall with cracks and apertures, vents, openings into the building and the overall structure of the buildings including any features such as crevices or cavities that may be suitable for bats to roost in. Evidence of roosting such as droppings or staining around entrances was also recorded. Where appropriate gaps and cavities were checked using an endoscope.

The date of site visit was 5th February 2024.

Methods of survey used have been based on those outlined in Joint Nature Conservation Committee's Bat Workers Manual (Mitchell-Jones & McLeish, 2004), Bat Surveys for Professional Ecologists (4th Edition) , BCT (2023), and English Nature's Bat Mitigation Guidelines (Mitchell-Jones, 2004).

2.3. Visual Internal Assessment

The internal roof spaces were thoroughly checked for the presence of bats. All areas that bats might access were fully surveyed, and suitable features checked with an endoscope, where appropriate. The dwellings were examined by an experienced, licensed bat worker, Dr Stefan Bodnar. Equipment used included powerful torches, camera, a set of telescopic ladders and binoculars and an endoscope to inspect any potentially suitable crevices or holes. The dwellings were examined for any feeding remains, droppings,

staining, worn surfaces and the bats themselves (alive or dead).

The date of site visit was 5th February 2024

3.0. Results

3.1. External Visual Assessment

The assessment was carried out using the guidance provided within the publication: Bat Surveys for Professional Ecologists (3rd Edition), BCT (2016), which states:

Bat Conservation Trust

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.		

The site

The site comprised a 1950s detached, brick bungalow, rendered no cavity wall, with pitched concrete tile roof and concrete ridge. Roof with hips (concrete tiles on hips). Intact wooden soffits remain throughout main building. Garage to side, no loft or cavity wall, similar structure though with replaced UPVC soffits and fascias. The main roof is with bitumen felt lining beneath the tiles and the loft space extends to approximately 3m at apex, boarded. The stables are blockwork, no cavity or loftspace with wooden frame roof and mineral felt cover. Appendix 1 shows aerial photographs and Appendix 2: site images.

Building description:

- Detached residential property
- No cavity walls
- The main roof was timber-framed and lined internally in bitumen felt.
- The roofs were clad in concrete tiles (intact) with concrete ridge/hips (intact).
- The eaves of the main roof are boxed and wooden
- Windows and doors are replaced UPVC.
- Loftspace has partial boarding, used for storage, Rockwool at base
- All mortar intact throughout

Main structure

The building is in good condition. The tiles are intact, as is the flashing and mortar. The windows are intact with no gaps at the roof interface. The building brickwork and render is intact as is the flashing. There were no gaps observed which might lead into the internal roof-space of the building. Windows, doors and soffits (where exist) are intact and well maintained.

Internal Visual Assessment for birds and bats:

There was no evidence of access to the internal main roof space by birds or bats, it is lined with bitumen felt, with insulation at ceiling level. The retained roof-space of the main building is cobwebbed and extends to 3.4m at apex and evidence of mice.

Stables:

Open and well lit with no bat roost potential. There were 2 former nests of swallow *Hirundo rustica* found.

Overall categorization for Bradwardine is: Negligible bat roost potential (BRP). (following inspection).

Garage:

Intact and well lit internally, sealed with no access points.

4.0. Conclusion

The survey determined that the building, garage and stable is conclusively not being used as a bat roost site. The building overall was categorized as negligible bat roost potential (BRP) in respect of potential use by bats.

5.0. Mitigation/Compensation

In relation to the National Planning Framework (2023) there will be no requirement for Mitigation/ Compensation measures for bats, no further surveys required, or particular cautions within the works specified other than for the stables which will need removal outside the key bird breeding season (March to August of any year). As a basic biodiversity enhancement the provision of a single bat box and single bird box (House sparrow terrace) on or incorporated within the main building is recommended, with 2 x swallow cups attached in an appropriate location on the new structure. In addition, external lighting should be restricted and should conform with BCT guidelines (Appendix 3 has a summary) though more recent guidance 'Bats and External lighting, BCT, revised 2023', should be followed.

6.0. References

Bats in Roofs. A guide for surveyors. English Nature, Peterborough, Mitchell-Jones, A.J. (2004).

Bat Mitigation Guidelines. English Nature, Peterborough, Mitchell-Jones, A.J.& Mcleish, A.P. (Eds)(2004).

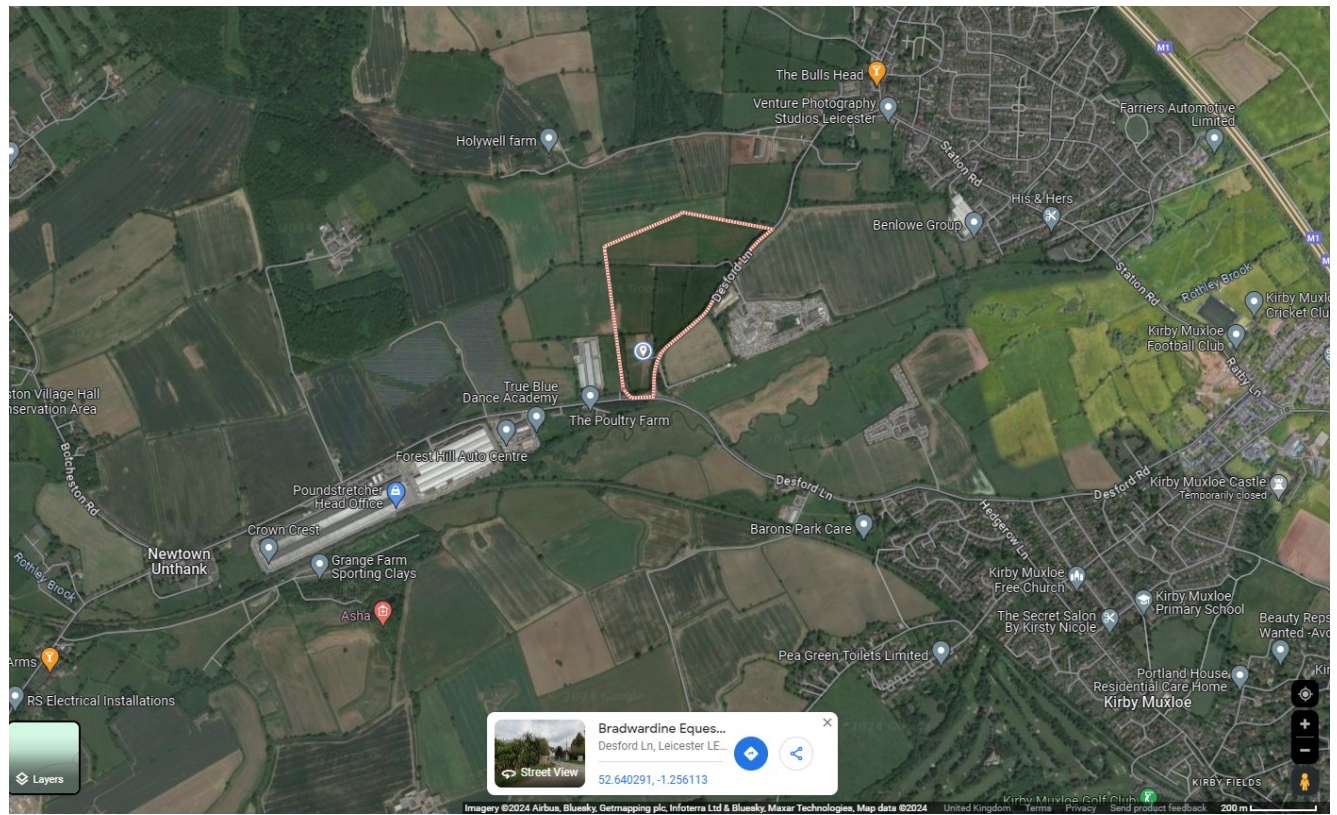
Bat workers Manual, ^{4th} Edn. Joint Nature Conservation committee, Peterborough.

Bat Survey guidelines (2023), Bat Conservation Trust
NPPF, 2023

Appendix 1: Aerial Photographs:



Wider landscape context



Appendix 2: Site images

Stables: image of swallow nest







Garage



Stables



Loft space





External bungalow



External rear bungalow



Stables





External rear bungalow



Appendix 3: External lighting guidance

MITIGATION OF LIGHTING IMPACTS ON BATS

- **FORAGING AND COMMUTING** Type of lamp (light source) The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its uv filtration characteristics.
- **Luminaire and light spill accessories** Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier. **Suitable examples shown below:**

Double Asymmetric Luminaire



Simple Hood



- **Lighting column** The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level.
- **Light levels** The light should be as low as guidelines permit. If lighting is not needed, don't light. **Timing of lighting** The times during which the lighting is on should be limited to provide some dark periods. Roads or trackways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 metres in length either side of commuting route.
- **SECURITY LIGHTING** Power It is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.
- **Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed. **Timers** If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.
- **Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit.

Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.

- Suitable types shown below (note that these are wall mounted and directed downwards)

Circular Louvre



Cowl & Louvre



Cowl (or Hood)



References: Bats and lighting BCT guidance and Guidance notes for the reduction of obtrusive lighting.