



PRELIMINARY BAT ROOST ASSESSMENT

The Boars Head, 14 Lynch Road,
Berkeley, Gloucestershire GL13 9TA

Report
7th December 2022

Client:



Report author:



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© Swift Ecology Ltd
35 Winterway
Blockley
Moreton-in-Marsh
Gloucestershire
GL56 6EF

Email



Website www.swiftecology.co.uk



QUALITY ASSURANCE

SURVEY CONDUCTED BY	[REDACTED]	SURVEY DATE	17.11.2022
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DATE	VERSION	PREPARED BY	CHECKED AND APPROVED BY
07.12.22	Version 1	[REDACTED]	[REDACTED]

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. We confirm that the opinions expressed are our true and professional bona fide opinions.

Every reasonable attempt has been made to comply with BS42020 (Biodiversity: Code of practice for planning and development); the CIEEM Guidelines for Ecological Report Writing (CIEEM, 2017); and the Bat Conservation Trust's Bat Surveys for Professional Ecologists Good practice guidelines 3rd edition (Collins, 2016). If compliance has not been achieved, justification/explanation has been given.

VALIDITY OF REPORT

The results of this assessment are only valid for a maximum of one year from the date the last site visit was carried out (November 2022). Should the works be delayed beyond this date, the survey should be updated to determine any changes to the status of the site and the assessment of effects. It should also be noted that local planning authorities may require updated surveys within a shorter timescale than one year.

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SUMMARY

A Preliminary bat Roost Assessment was undertaken of The Boars Head public house and associated outbuilding at 14 Lynch Road, Berkeley, Gloucestershire on 17th November 2022. The survey and assessment were required in connection with proposals to develop the building into residential accommodation.

The purpose of this report is to identify and describe the potential impacts of the work on bats; and to identify the need for further surveys and whether a protected species mitigation licence application may be required. Nesting birds are also considered.

The Boars Head public house is located within the village of Berkeley and is surrounded by moderate density residential dwellings, their gardens and roads. The village is surrounded by an open landscape of arable and pastoral farmland within the Vale of Berkeley and Severn Vale. The original end-of-terrace front to the public house is a Victorian brick-built structure with a pitched, concrete tiled roof. There are several newer extensions on the rear (north) of the main building, including both one- and two-storey additions. The original building and the extensions all have roof voids, mostly unconnected with each other. There is also a brick outbuilding with a corrugated metal roof a few metres north of the main building.

The preliminary roost assessment revealed the presence of bat droppings within an L-shaped void of one of the two-storey extensions, confirming the presence of a bat roost within the void. DNA analysis confirmed the droppings were from whiskered bat *Myotis mystacinus*. The low number of droppings present suggests the void supports an occasional day or night roost for an individual of this species. No evidence of other bat species was found, and the main building is considered to have 'low' suitability to support other bat species. The single-storey extensions and brick outbuilding are considered to offer 'negligible' suitability for roosting bats.

Currently the proposals are not believed to affect the L-shaped roof void where the bat roost is located. However, if any works affecting this void and are proposed, including roof repair works, it is recommended that bat activity surveys are undertaken to fully characterise the status of this roost and identify bat access points that might be affected. A detailed bat mitigation strategy and protected species licence from Natural England may be required to enable the development works to be carried out.

Planning policy requires that development projects incorporate biodiversity enhancement elements; recommendations are therefore made for appropriate bat and bird boxes to be installed.

The results of this assessment are valid for up to one year from the date it was carried out (November 2022). If the proposed works are delayed beyond this date, this survey should be updated.

1 INTRODUCTION

1.1 Background

Swift Ecology Ltd. were commissioned to undertake a Preliminary Roost Assessment for bats of several buildings at The Boars Head, 17 Lynch Road, Berkeley, Gloucestershire GL13 9TA. The survey was undertaken on 17th November 2022. The site is located at OS grid reference ST 6810 9933.

The survey and assessment were required in connection with proposals to develop the building for residential accommodation, to include demolition of parts of the buildings and conversion into residential accommodation. Because of the nature of the works, which would involve impacts upon structures that could potentially be used by roosting bats, there is a risk that offences could occur if bats or bat roosts are present.

Nesting birds are also considered as part of this assessment.

1.2 Personnel

The survey and assessment were undertaken by Dr Nick Underhill-Day MCIEEM of Swift Ecology Ltd. Nick is employed as Principal Ecologist with Swift Ecology Ltd and is an experienced bat surveyor and holder of a Natural England (NE) survey licence for bats (Class Licence reference WML-CL18 2015-15526-CLS-CLS). He has been actively involved with bat work for the last ten years and has undertaken numerous bat surveys, including both preliminary roost assessments and activity surveys of a variety of buildings and structures such as residential dwellings, farm buildings, industrial buildings, bridges, derelict buildings and churches. He also has considerable experience in the associated ecological appraisal of bat roosts and in methods required for appropriate mitigation.

1.3 Ecological Context

The Boars Head public house comprises a collection of adjoining buildings located within the village of Berkeley in south-west Gloucestershire. Berkeley lies approximately 2 km to the east of the Severn Estuary, within low lying land of the Vale of Berkeley and Severn Vale.

The Boars Head encompasses an original end-of-terrace Victorian brick-built building, to which several rear extensions have subsequently been added. These include both single and two-storey extensions with pitched and flat roofs. In the north-east corner of the pub garden is an old brick outbuilding with a sloping corrugated metal roof; this is believed to be an old coach house. The curtilage of the public house also includes a car park of hardstanding immediately west of the main building and a small pub garden of amenity grassland to the rear (north) of the pub and car park.

The Boars Head is located along the main high street (Lynch Road and Salter Street) running east to West through Berkeley, and is surrounded by residential dwellings and their gardens. Beyond the village the countryside includes both arable and pastoral farmland, with field boundary

hedgerows and scattered trees; this is a relatively flat and open landscape with only small stands of trees; the nearest woodland, Bushy Grove, lies roughly 2 km to the north-east.

The landscape context of the site is illustrated in Figure 1 below. An aerial view of the surveyed buildings is provided in Figure 2.



Figure 1: Site location (red) and surrounding landscape.



Figure 2: Aerial photo showing surveyed buildings outlined in red.

1.4 Purpose of Report

The purpose of this report is to identify and describe the potential impacts of the proposed works on bats; to identify the need for further surveys and whether a protected species mitigation licence application may be required in relation to bats; and to set out the mitigation, enhancement and compensation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects. The report also provides information on the legislative requirements relating to bats. In addition, impacts on nesting birds are considered.

The legal protection and planning policies relevant to the species mentioned in this report are detailed in Appendix 1.

2 METHODS

2.1 Background Desk Study

A background data was undertaken in November 2022 by the Gloucestershire Centre for Environmental Records Centre (GCER) for records of bats and nesting birds within a 2 km radius of the site.

Reference was also made to Natural England's MAGIC website¹ for records of granted Natural England protected species bat mitigation licences within a 2 km radius of the site.

2.2 Preliminary Bat Roost Assessment

2.2.1 General

The preliminary survey was undertaken on 17th November 2022 by Nick Underhill-Day of Swift Ecology Ltd. Weather conditions at the time of the survey are shown in Table 1. The survey covered the structures, as shown in Figure 2, Section 1.

Table 1: Survey conditions

Date	Approximate start time	Weather conditions
17.11.22	11:00 am	12°C, dry with sunny spells (40 % cloud cover) and a light breeze (Beaufort F1).

2.2.2 Assessment of Bat Roost Potential

The buildings were assessed for their potential to support bats or bat roosts according to industry standard guidelines (Collins, 2016). This involves a consideration of various factors including:

- Light levels
- Temperature regime and protection from weather
- Access to the interior of the building or to other suitable roost sites
- Potential roost sites
- Building construction
- Habitat context

Based on these factors, an assessment was made of whether the buildings might support bats, and the type and number of roosts that might be present. The buildings were assigned a roost potential category (Collins, 2016) according to the criteria outlined in Table 2 below, based on the results of the assessment.

¹ <https://magic.defra.gov.uk/MagicMap.aspx>

Table 2: Guidelines for assessing the potential suitability of buildings/structures for roosting bats (based on Collins, 2016).

Category	Category description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A building or structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A building or structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).
High	A building or structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Known roost	Building or structure currently supporting bats (based on presence of bats, or evidence of use such as droppings, carcasses etc.).

2.2.3 Survey for Signs of Bats

A detailed inspection was made of the exterior and interior of the buildings for any evidence of bat use, such as live or dead bats, droppings, scratch marks, staining and prey remains (e.g. moth or butterfly wings), and in some cases the absence of cobwebs. Large quantities of cobwebs in roof voids or at access points tend to be suggestive of no bat use, although this evidence is not conclusive.

Features identified as possible bat access points or potential roosting locations were thoroughly searched where possible, using powerful torches, binoculars and an endoscope to facilitate the process. Ladders were available to enable more detailed inspection of cracks and crevices as far as access allowed.

Bat droppings were collected from one of the roof voids and sent for DNA analysis at Ecotype Genetics Ltd.

2.3 Limitations

The Preliminary bat Roost Assessment was undertaken in good light and weather conditions.

All roof voids were accessible for inspection. Some external areas of the buildings, on the eastern and northern elevations, were not accessible for inspection as they border private gardens of adjacent dwellings. This is not considered a significant constraint to the assessment as all interior areas of the building and most of the exterior areas were inspected and a reasonable overall assessment could be made.

It should be noted that a Preliminary bat Roost Assessment cannot rule out bat presence, as bats may roost in areas that are not accessible other than by a destructive search (such as in cavity walling).

3 RESULTS

3.1 Background Desk Study

3.1.1 Bats

GCER provided 31 records of bats within a 2 km radius of the site, recorded between 1993 and 2020. At least eight species have been recorded, namely common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, brown long-eared bat *Plecotus auritus*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus*, whiskered bat *Myotis mystacinus*, Daubenton's bat *Myotis daubentonii* and lesser horseshoe bat *Rhinolophus hipposideros*, as well as indeterminate species records.

16 records are from locations within Berkeley, with the nearest record, from 2020, of two roosting soprano pipistrelles from a building 50 m to the south-east. The next nearest record, from 2013, is of two common pipistrelles in flight, from a location 150 m to the north-west, on the edge of the village. The remaining 14 records are from locations within Berkeley, between 2008-2016, and are of bats in flight (foraging and/or commuting) from two locations on the eastern outskirts of the village, between 500 m and 700 m distant. Only one record (described above) is of roosting bats.

A map of bat records within 2 km of the site is provided in Appendix 2. The full data search from GCER is available on request.

Reference to Natural England's Magic website, which holds records of granted bat mitigation licences issued by Natural England since 2009, identified no granted bat licences within 2 km of the site.

An absence of records does not mean that a particular species is not present, merely that it has not been recorded. Many species records are not obtainable from the sources utilised and therefore there may be further undetected records for such species on the study site or in the local area.

3.1.2 Nesting Birds

GCER provided 505 records of birds within a 2 km radius of the site, recorded between 2000 and 2021; most of the records are of species listed on WCA 1981 Schedule 1², Species of Principal Importance for the purpose of conserving biodiversity³ and/or species of high (red-listed) or medium (amber-listed) conservation concern⁴. Species recorded locally within a 2 km radius, and which could potentially nest within the building, if there were suitable features present, include house sparrow *Passer domesticus*, house martin *Delichon urbicum*, swift *Apus apus*, swallow *Hirundo rustica*, starling *Sturnus vulgaris*, spotted flycatcher *Muscicapa striata* and wren *Troglodytes troglodytes*.

² Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

³ Species designated as "Species of Principal Importance for the purpose of conserving biodiversity" as listed under Section 41 (England) of the Natural Environment and Rural Communities Act 2006; these species are priority species for the UK Post-2010 Biodiversity Framework and form a key component of the Biodiversity Strategy for England.

⁴ Birds of Conservation Concern 5 (Stanbury et al., 2021).

In addition there are local records of barn owl *Tyto alba*, little owl *Athene noctua*, kestrel *Falco tinnunculus*, jackdaw *Coloeus monedula*, black redstart *Phoenicurus ochruros* and robin *Erithacus rubecula*.

A map of bird records within 2 km of the site is provided in Appendix 3. The full data search from G CER is available on request.

3.2 Building Description

The Boars Head public house comprises a collection of adjoining building structures and a separate brick outbuilding a few metres to the north.

The original Victorian brick-built building is an end-of-terrace with a pitched, tiled roof and two brick chimney columns (Figure 3, structure 1). An L-shaped brick extension adjoins the original building (Figure 3, structure 2); this has pitched, tiled roofs with two additional brick chimneys.

A more recent brick and breezeblock extension has been added above a flat roofed extension (roof terrace) on the western elevation of the building (Figure 3, structure 3); this has a short, tiled roof merging with the roof of structure 2.

A long, single-storey, modern brick/breezeblock extension, with a pitched tiled roof, has been added onto the north gable of structure 2 (Figure 3, structure 4).

A few metres to the north of the main building complex is an old brick outbuilding with a shallowly sloping corrugated metal roof, wooden doors and glazed windows on its southern elevation (Figure 3, structure 5).

Figure 3 and Plates 1 to 6 show the different building structures and associated roof voids or internal areas.

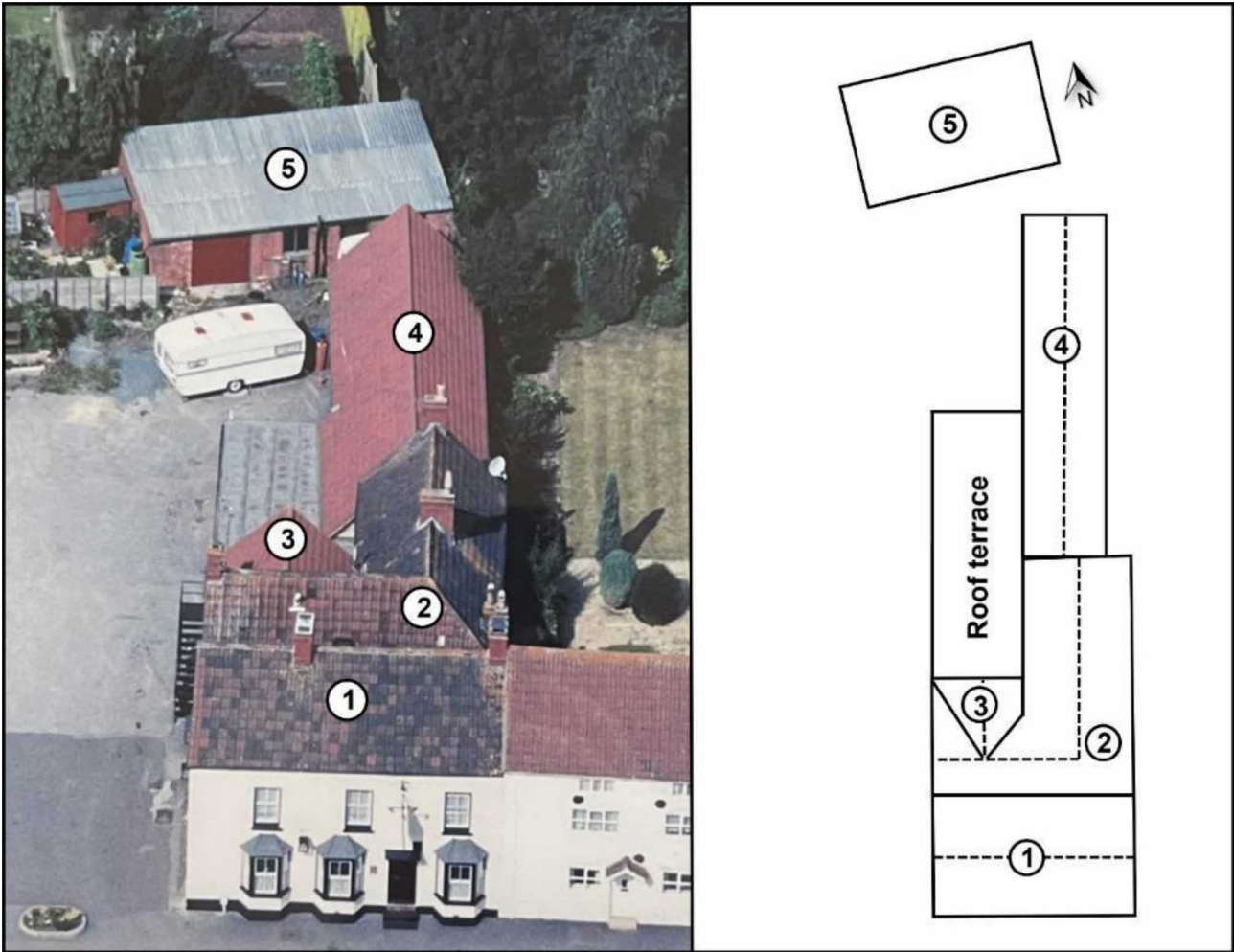
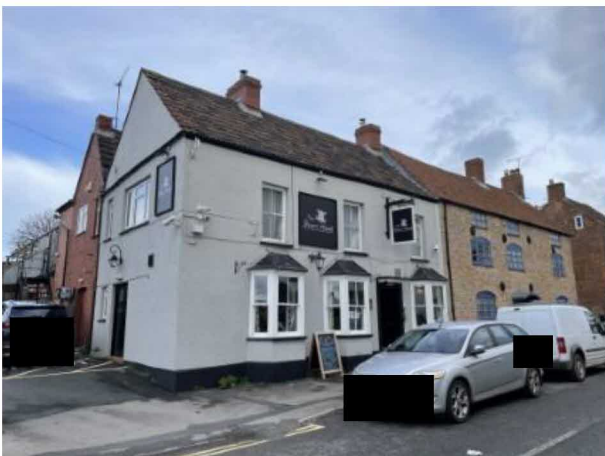


Figure 3: Old aerial photo (circa 1970s) showing the layout of The Boars Head public house (left) and schematic of the buildings surveyed (right); showing 1) original Victorian end-of-terrace; 2) modern L-shaped two-storey extension; 3) modern small two storey extension; 4) modern single-storey extension; and 5) old brick outbuilding (former coach house & stables). A single-storey extension with a flat roof (terrace) is also present.



Plates 1 and 2: The Boars Head; showing southern elevation (left) and western gables (right) of structures 1 and 2 (see Figure 3), with pitched, tiled roofs and brick chimneys.

Plate 3: Western elevation; showing the two-storey extensions (structures 2 and 3, Figure 3) and single-storey extension with a flat roof (structure 4, Figure 3) and adjoining wooden canopy.

Plate 4: Single-storey extension; and part of the roof terrace (structure 4, Figure 3).

Plates 5 and 6: Brick outbuilding (former coach house) to north of main pub complex: showing corrugated metal roof and glazed windows (Figure 3, structure 5).



Plate 7: Missing and slipped roof tiles on south Pitch of structure 1.



Plate 8: Missing roof tile on south pitch of structure 2

3.3 Assessment of Bat Roost Potential and Survey for Signs of Bats

3.3.1 Environmental Context of the Buildings

The Boars Head is located in an area of moderate density residential housing and is surrounded on all sides by roads, residential dwellings and associated gardens. There are several scattered mature trees along the northern (rear) boundary of the site, and within the garden to the east, which might provide vegetative cover for bats, if present. However, the southern and western elevations are relatively exposed, with few trees and very little cover for bats, if roosting in the buildings.

Foraging opportunities for bats in the immediate vicinity of the Boars Head are relatively poor and limited to small gardens and patches of amenity grassland. However, there is open countryside within 200 m to the north, west and south, comprising areas of grassland, lines and small stands of trees, field boundary hedgerows and the riparian corridor of the Berkeley Pill watercourse. However, bats would have to cross roads and artificially lit areas to reach these habitats, and thus connectivity to nearby foraging areas is suboptimal for many bat species.

Further out the surrounding landscape is largely unwooded and intensively managed, with few large areas of semi-natural vegetation, and thus is likely to provide only moderate quality commuting and foraging habitats for bats.

Street lighting is present along Lynch Road to the immediate south, while the western and southern elevations of the building have external artificial lighting at eaves level (flood lights) and above doorways. This may deter more light-averse bat species, such as long-eared bats, horseshoe or *Myotis* species, from accessing the building from these elevations, or for roosting or foraging. However, the eastern and northern elevations of the buildings border residential gardens so may be darker.

3.3.2 Building Exteriors

Main Building (structures 1-4, Figure 3)

The original end-of-terrace Victorian building comprises rendered brickwork with a combination of uPVC and wooden window frames and doors. The rendered brickwork is well-sealed with no features suitable for roosting bats. The eaves are closed with wooden fascia boarding, which is tightly sealed to the rendered brickwork. Similarly, the lintels of the rear extensions are in relatively good condition and tightly sealed to the window and door frames and associated brickwork. The eaves of the extensions are closed and tightly sealed with wooden fascia or soffits, with no access for bats into the roof voids via the eaves.

All visible gable tile verges (western and southern elevations) are in good condition, with no areas of crumbling mortar, crevices or gaps that might offer access or roosting opportunities for bats. The brick chimneys in the original building and in the two-storey extensions are well-sealed with lead flashing to the roof tiles below, with no areas of lifting flashing. The brick chimneys are in good condition, with no potential roost features visible.

The pitched roofs of the building are covered with modern concrete pantiles; these appear mostly well sealed when viewed from ground level, although there are likely to be small gaps within the overlapping tiles that might allow bats access opportunities into the roof voids or spaces below

the tiling. There are also several slipped, broken and missing tiles on some of the roof pitches, including missing and slipped tiles on the south roof pitch of the original building (Plate 7; structure 1, Figure 3); and a missing tile on the south roof pitch of the two-storey extension (Plate 8; structure 2, Figure 3). There are also visible gaps between the concrete ridge tiles and pitch tiles below where the mortar has fallen out, offering access opportunities for bats into the voids or to spaces beneath the ridge tiles.

No bats or evidence of bats was found anywhere on the exterior structures of the building.

Brick outbuilding (structure 5, Figure 3)

The outbuilding has solid brick walls below a corrugated, metal panelled roof. There are gaps in the corrugations of the roof panels; however, the roof panels are likely to be subject to extremes of temperature, and thus these gaps are considered suboptimal for roosting bats. The eaves are closed and any gaps at the wall tops are obscured by gutters.

The eastern end of the building is covered in dense ivy, with potential to support nesting birds.

The building has two main rooms, each accessed through doorways on the south elevation. There are also several glazed windows on the south elevation allowing light into both rooms. The wooden door and window frames are well-sealed to the adjacent brickwork, with no noted gaps likely to offer opportunities for bat access or roosting.

No bats or evidence of bats was found anywhere on the exterior structures of the outbuilding.

3.3.3 Building interiors

Main Building (structures 1-4, Figure 3)

The Boars Head main building has four roof voids as follows:

Structure 1: Plates 9-12

Above the original Victorian building (structure 1) the void measures approximately 10 m long by 5 m wide, and is roughly 2.25 m from the ceilings joists to the ridge board at the roof apex. The void has an internal brick wall and chimney column roughly 3 m from the west gable; a large hole in the wall would provide easy access for bats, if present, between the two sections of the void.

The roof is supported by large timber purlins, horizontal and vertical supporting struts and rafters and is relatively uncluttered, so would offer a reasonable flight space for void-roosting bats species. The roof is mostly lined with bitumastic felt but the top row of tiles on the south roof pitch, and a section of tiling at the eastern end, is unlined, and thus access into the void would be possible from above.

The apex ridge board has some cobwebs along its length, which is suggestive of no recent bat use. The ridge tiles are visible above the ridge board, with the enclosed cavities below the tiles appearing relatively un-mortared; these cavities are likely to offer suitable access and roosting opportunities for bats. The missing tile on the south roof pitch near the west gable (Plates 7 and 12) would provide easy flying access for bats into the void.

No bats or evidence of bats were visible within the void.

Structure 2: Plates 13-16

The L-shaped void above the rear second-storey extension measures approximately 10 m in length from east to west and 11 m from north to south. The void measures between 2.5 m and 4 m wide and ranges from 1 m (north-south section) to 1.5 m (east-west section) in height. A large brick chimney column passes through the north-south void.

The roof is supported by timber purlins, supporting struts and rafters merging at the apex ridge board. The void is relatively uncluttered and has east/west and north/south aspects, so would provide a range of environmental conditions for bats and provide a reasonable internal flight space, albeit of limited height, particularly the north-south section of the void.

The first-floor rooms below are partially built into the roof space, and thus there is no eaves access for bats into the void.

The east-west section of the void is lined with bitumastic felt; there are several large gaps and tears in the lining, with the tiles visible above. The north-south section of the void is unlined. There are missing tiles (Plate 8) as well as many small gaps visible in the tiling that would provide easy access for bats into the void. The ridge boards within the void are mostly heavily cobwebbed, suggesting no recent or extensive bat use, for example by a large number of bats.

Where the voids meet there is a short (c. <0.5 m) section of ridge board without cobwebs; below this was a small collection of bat droppings (<30) characteristic of a small-sized bat species, such as pipistrelle or small Myotis bat species. The droppings ranged from pale brown to dark, reflecting a range of ages. There were several (<10) butterfly wings also scattered on the void floor, possible bat feeding remains.

A sample of droppings was collected for DNA analysis, which confirmed the droppings were from whiskered bat (Appendix 4). However, no bats were observed within the void during the site visit.

Structure 3: Plate 17

Above the smaller second-storey extension is a relatively small void, measuring approximately 3 m long by 4 m wide, and roughly 1.5 m in height to the apex. The void was not accessible for close inspection but could be viewed by lifting up a section of plastic sheeting which separates the void from the larger L-shaped void in structure 2 (see Figure 3).

The roof is supported by timber purlins and rafters and is lined with bitumastic felt, in relatively good condition, with no gaps or tears visible. The void contains heavy cobwebbing along the ridge board, suggestive of no recent bat use. The plastic sheeting is likely to prevent bat access between the two voids as it is relatively tightly sealed to the timbers.

No bats or evidence of bats was visible within the void.

Structure 4: Plates 18-20

The roof void above the single-storey northernmost extension measures approximately 16 m long by 5 m wide and roughly 2.25 m in height to the roof apex.

The extension is of modern construction with the majority of the roof supported by closely spaced fink trusses and rafters, with a short section at the southern end containing cross struts and rafters. The void is large but very cluttered, and thus suboptimal as a flight space for void-roosting bats. Only the southern end has a section of ridge board at the roof apex, a feature often favoured by void-roosting bats, and thus most of the roof apex is suboptimal for roosting bats.

The roof is lined with bitumastic felt; this is in good condition with no gaps or tears visible. Glass fibre insulation abuts up against the lining preventing access from the eaves, if bats were able to access the soffits. The void contained numerous cobwebs, suggesting no recent bat use.

Vegetation has grown into the void via the eaves area, along much of the lower eastern roof edge, indicating the likely presence of climbing vegetation along the outside wall. This indicates the eastern eaves may be covered with dense vegetation, further restricting any potential bat access via the eastern eaves. However, this area was not accessible for inspection.

No bats or evidence of bats was visible within the void.

Structure 5 - brick outbuilding: Plates 21-22

The rooms of the brick outbuilding are relatively well-lit from light ingress through the windows, and thus the building interior is suboptimal for void-roosting bats, which generally prefer darker roosting conditions.

There are no enclosed roof voids in the building; the roofs are covered with corrugated metal panels to which either wood panelling (west room) or thin MDF-type boarding have been attached as ceilings. Part of the MDF-type boarding has bowed with bitumastic felt visible above, below the roof panels. The timbers supporting the roof are tightly sealed into the brickwork. The building is currently used for storage but is otherwise relatively undisturbed.

No bats or evidence of bats was found within the building.

3.4 Nesting birds

There was no evidence of birds' nests within the buildings. However, the dense ivy covering the eastern end of the brick outbuilding (structure 5) and vegetation likely to be covering the eastern elevation of the single-storey extension (structure 4) is likely to offer suitable features for nesting birds. An old birds' nest was also observed on the floor of the roof in structure 1, and thus bird nesting in this void cannot be ruled out.

A colony of house sparrows was heard during the survey.

The presence of nesting birds within vegetation or within roof structures during the spring and summer breeding period (March to August inclusive) cannot be ruled out.

Plates 9-12: Roof void – structure 1: showing roof timbers, brick gables and roof linings..

Plates 13 and 14: Roof void – structure 2 (L-shaped void): showing the east-west section of the void.

Plates 15 and 16: Roof void – structure 2 (L-shaped void): showing the north-south section of the void.

Plate 17: Roof void - structure 3.

Plate 18: Roof void - structure 4 (above single storey) extension.

Plates 19-20: Roof void – structure 4 (above single-storey extension).

Plates 21 and 22: Rooms of brick outbuilding (structure 5, Figure 3)

4 EVALUATION AND IMPACT ASSESSMENT

4.1 Proposed Development

The proposal involves conversion of the public house buildings into residential accommodation.

At the time of writing the final plans were not available but it is understood that the majority of the original building, including all second-storey sections (Sections 1, 2 and 3, Figure 4), will be retained, with all associated roof voids remaining. The single-storey sections (i.e. roof terrace and section 4, Figure) and the brick outbuilding (section 5, Figure 4) are likely to be demolished and new two-storey units constructed in their place. Currently there are no plans to modify retained roofs and associated voids but potential impacts on these structures should be viewed against the final plans within the proposal, which may include re-roofing of existing roofs and interference with existing voids where any new roof structures are tied in.

4.2 Bats

The buildings at The Boars Head public house comprise a mixture of structures of different character and age. The elevations of the buildings are generally in good condition or tightly sealed, with no opportunities for bat access or roosting, including most of the inspected eaves areas.

The roof voids in structures 1 and 2 have features, such as cracks and gaps, that offer potential bat access into the roof structures and voids.

Structures 3 and 4 are the most recent rear extensions, and comprise more modern materials; these are generally in better condition and have very limited access into the roof voids.

The brick outbuilding has limited access opportunities for bats and few features offering opportunities for roosting bats.

A small number of bat droppings from whiskered bat were found in the L-shaped void within one of the two-storey rear extensions (structure 2, Figure 4). Considering the relatively low number of droppings present, spanning several years, the roost is likely to represent an occasionally used day or night (feeding) roost for a single bat of this species.

Overall, the two-storey sections of the building (structures 1-3) are considered to offer 'low' bat roost potential, while the more modern single-storey rear extension (structure 4) and roof terrace, and brick outbuilding (structure 5) are assessed as being of 'negligible' bat roost potential.

However, considering the site's location and surrounding habitats, the likely presence of most bat species, including all Habitats Directive Annex 2 species, can be ruled out. Equally, the absence of larger accumulations of bat droppings within any of the voids, and suboptimal conditions, suggests the presence of larger bat roosts is unlikely, including those of maternity colonies.

The proposals are understood to include demolition of the brick outbuilding and reconfiguration of the main building, which may include demolition of single-storey sections of the building and

construction of new two storey rear extensions, and conversion of the public house into residential accommodation. Because the presence of a bat roost within one of the roof voids has been confirmed, there is a potential risk of impacts, and of associated legal offences, upon bats occurring as a result of development. Without mitigation, offences could include the following:

- Disturbance, death or injury of bats, if present at the time of works;
- Loss of bat access into a roost site; and
- Loss of a roost site.

It is understood there will be no major impacts to the main roof voids (structures 1 and 2), and thus the identified bat roost in the roof void of structure 2 will be retained. However, construction works and associated roof repairs could potentially affect this roost, depending upon the final plans detailed for the project.

4.3 Nesting birds

Some of the older roofs (structures 1 and 2) and vegetation covering parts of the buildings (east end of the brick outbuilding (structure 5) and east elevation of the single-storey extension (structure 4) have suitability to support nesting birds, although none were found. All nesting birds are protected by law, regardless of how common the species, and thus a precautionary approach must be adopted during development works to the building.

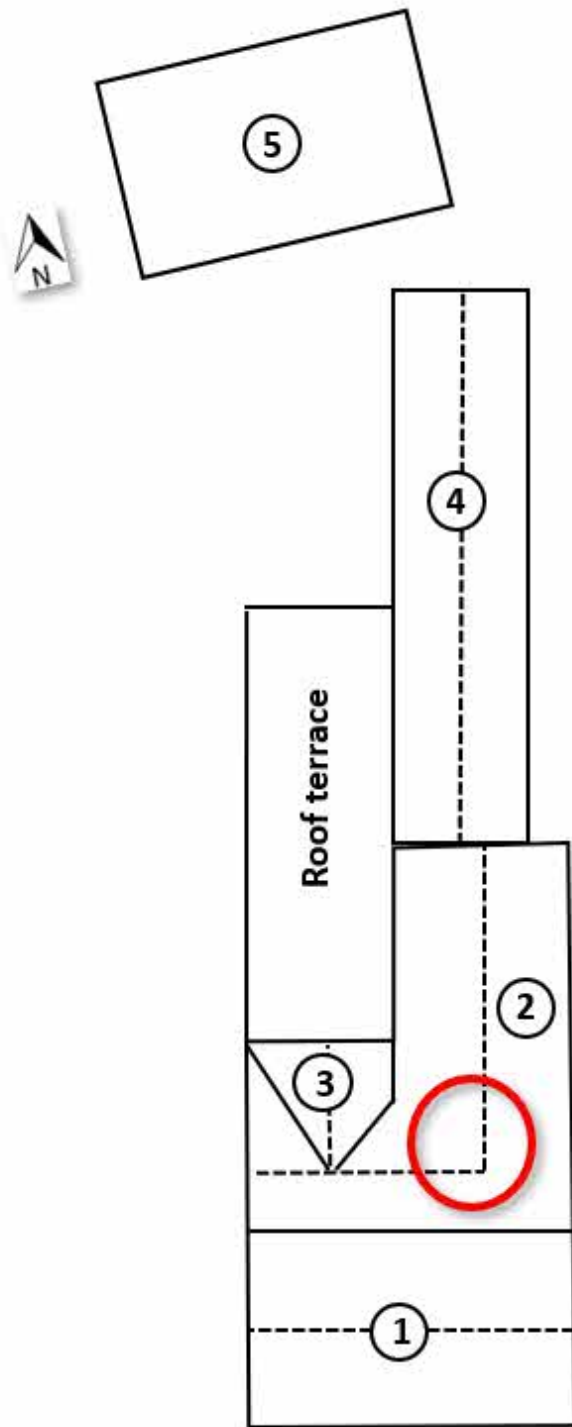


Figure 4: Location of whiskered bat roost (red circle) within the L-shaped two-storey extension.

5 RECOMMENDATIONS

5.1 Bats

The Boars Head public house is a confirmed bat roost for whiskered bat; the low number and localised nature of the droppings suggests the L-shaped roof void (structure 2) is used by a single bat of this species on an occasional basis, either as a day roost or night roost. No maternity colony is expected to be present, and considering the site's location, the building is unlikely to support additional bat roosts, although their potential presence cannot be entirely ruled out.

Structure 2 – confirmed bat roost

Currently, the proposals are not believed to affect the roof void (structure 2) where the bat roost is located. However, if any works affecting this void are proposed, including roof repair works or works to tie-in new roof structures, it is recommended that bat activity surveys are undertaken to fully characterise the status of this roost, identify bat access points, and assess the likely impacts on the bat roost.

Prior to such works being undertaken, and in order to accommodate the species of roosting bat present, to ensure that bats are not harmed during works and to ensure that there are no negative effects on bat populations, detailed mitigation and/or compensation measures for bats would need to be designed into the scheme and incorporated into a method statement/mitigation plan.

No works can be carried out to the L-shaped roof void until a protected species licence is obtained, to avoid offences under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019). The licence can be applied for only after any necessary Planning Permissions and Listed Building consents are in place and any relevant conditions are discharged.

All other structures

Structures 1 and 3 (Figure 4) are considered to offer low suitability for bats; no bats or evidence of bats was found within these voids and it is considered that bats are unlikely to be present. Normally structures considered of low suitability would require a single precautionary bat survey to determine presence/likely absence. However, the BCT guidelines (Collins, 2016) also state that professional judgement should be exercised, with consideration of other factors, when making decisions on how best to proceed. Because of the location and lack of evidence of bats, it is considered in this case that adoption of precautionary measures during construction are appropriate and proportional, particularly as structures 1 and 3 will be retained and works are understood not to affect these structures. Other roof structures (structures 4 and 5) have negligible suitability for roosting bats.

In the unlikely event that roosting bats are present in any other roof structures (structures 1, 3, 4 and 5), and in order to ensure that bats are not harmed by the proposed works, the following precautionary approach should be adopted during development works:

All roof coverings and supports, including tiles, battens and roof timbers, and door/window frames, should be removed carefully by hand.

All site workers will be made aware of the possibilities of finding bats and the procedure to follow should they be found.

In the unlikely event that a bat is discovered during repairs of the building all work must stop immediately, and a licensed bat ecologist must be consulted. Telephone numbers of such will be held on site (Swift Ecology numbers: 07719 329170 and 01684 302055). Further surveys and a Protected Species mitigation licence from Natural England may be required.

Should any bats fall out of structures or be injured, they will be gently placed in a secure ventilated box (e.g. a cardboard box) by the contractor and left in a cool dark place, until appropriate advice can be sought. Bats should not be handled without gloves.

A copy of these recommendations will be available to site workers and displayed on site.

To minimise the impact on bats during development, night-time working will be avoided, and the site will not be illuminated at night.

Long-term mitigation for lighting

To minimise potential long-term disturbance to natural habitats, such as trees, hedgerows and adjacent gardens, any new external artificial lighting on the building should be sensitively designed. Artificial lighting should be kept to a minimum and away from trees and boundary habitats with bat foraging and/or commuting potential. Any lighting should be directional, pointing downwards away from roof structures to the area where illumination is required, to reduce the effects of light-spill upon bat activity and nearby roosts, if present. General recommendations for the installation of external lighting during construction include the following measures:

- careful placement of luminaires so that they illuminate only the required areas and minimise light spill on suitable foraging/commuting habitat nearby;
- installation of directional lighting, specialist bollard or low-level downward directional luminaires;
- use of appropriate luminaires, with no UV component, warmer colours (i.e. more yellow/orange, ideally <2700 Kelvin (and 3000 Kelvin as a maximum)) and peak wavelengths higher than 550 nm;
- LED luminaires are preferable to other types of luminaires due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- use of luminaires with an upward light output ratio of 0 % and good optical control;
- screening of light spill through soft-landscaping or installation of walls/fencing/bunding;
- use of security lighting with motion sensors and short (1 minute) timers; and/or
- use of dimming or part-night lighting.

Further information can be found in 'Bats and artificial lighting in the UK; Guidance Note 08/18' (Miles et al., 2018) and 'Domestic exterior lighting: getting in right!; Guidance Note 09/19' (Institute of Lighting Professionals, 2019). Implementation of this measure will also reduce impacts on nocturnal fauna, including hedgehog and nocturnal invertebrates.

5.2 Nesting Birds

Parts of the buildings could potentially be used by nesting birds. All nesting birds are protected by law. To avoid committing an offence, any works to the roofs and vegetated areas of wall elevations should be undertaken outside the bird breeding season (March to August inclusive). If this is not possible, these areas should be checked immediately prior to works commencing by a suitably qualified ecologist. If there are breeding birds present, works that will disturb or destroy the nest cannot continue until the chicks have fledged and left the nest.

Compensation or loss of potential nesting sites (e.g. in dense vegetation along some of the building elevations) should be made by incorporation of a minimum of No. 4 bird nesting boxes into the development. These should cater for priority species or species of conservation concern, such as house sparrow which is present in the area. Suitable boxes to integrate into the development are suggested in Appendix 5.

5.3 Biodiversity Enhancements

Current planning policy requires that development projects minimise ecological damage and should contain elements of ecological enhancement. The Environment Act (2021), Natural Environment White Paper (2011) and National Planning Policy Framework (2021) require that development results in net gains for biodiversity.

To increase the value of the development proposal for biodiversity, to comply with National legislation and Planning Policy, additional features for use by bats and nesting birds should be provided, such as boxes incorporated into the upper fabric of the buildings.

Suitable Biodiversity Enhancement features are suggested in Appendix 5 of this report.

5.4 Validity of report

The results of this preliminary survey and assessment are valid for one year from the date it was carried out (November 2022). Should the proposed development be delayed beyond this date, the survey should be updated; it should also be noted that regulatory authorities may require updated surveys within a shorter timescale than two years.

6 RELEVANT LITERATURE

British Standard (2013). BS 42020:2013: Biodiversity. Code of practice for planning and development.

Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Ecological Report Writing. CIEEM, Winchester.

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

JNCC & DEFRA (on behalf of the Four Countries Biodiversity Group) (2012). UK Post-2010 Biodiversity Framework. July 2012. Available from: <http://jncc.defra.gov.uk/page-6189>.

Institute of Lighting Professionals and Bat Conservation Trust (2018). Guidance Note 08/18 Bats and artificial lighting in the UK. Bats and the Built Environment Series. Available from: <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

Institute of Lighting Professionals (2019). Guidance Note 9/19 Domestic exterior lighting: getting it right! Available from: <https://theilp.org.uk/publication/guidance-note-9-domestic-exterior-lighting-getting-it-right/>

Mitchell-Jones, A. J. (2004). Bat Mitigation Guidelines. Natural England, Peterborough.

Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Schofield, H.W. & Mitchell-Jones, A.J. (2004). The bats of Britain and Ireland. The Vincent Wildlife Trust, Ledbury, England.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.

APPENDIX 1: LEGISLATION AND PLANNING POLICY

A1.1 Introduction

This section briefly lists legal protection/planning policy applying to designated sites, species or habitats mentioned in this report. It does not comprehensively reflect the text of the legislation/policy and it should not be relied upon in place of it. The following documents are relevant:

- The Local Government Act 1985;
- The Wildlife and Countryside Act 1981 (as amended);
- The Environmental Protection Act 1990;
- The Countryside and Rights of Way (CROW) Act 2000 (in England and Wales);
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Conservation of Habitats and Species Regulations 2017, as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- Environment Act 2021;
- The Natural Environment White Paper (England) (DEFRA, 2011);
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011), which underpins the UK Post-2010 Biodiversity Framework (JNCC & DEFRA, 2012);
- National Planning Policy Framework (MHCLG, 2021); and
- Stroud District Local Plan (to 2031).

A1.2 Protected Species

A1.2.1 All species of British bat

All species of British bat (Vespertilionidae and Rhinolophidae) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive some limited protection under Section 9. These species are also all listed as protected species in Schedule 2 of The Conservation of Habitats and Species Regulations 2017, as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which gives them full protection under Regulation 43.

It is also an offence to set and use articles capable of catching, injuring or killing such species (for example a trap or poison), or knowingly cause or permit such an action.

Seven species of British bat are listed as species of principal importance for the purpose of conserving biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

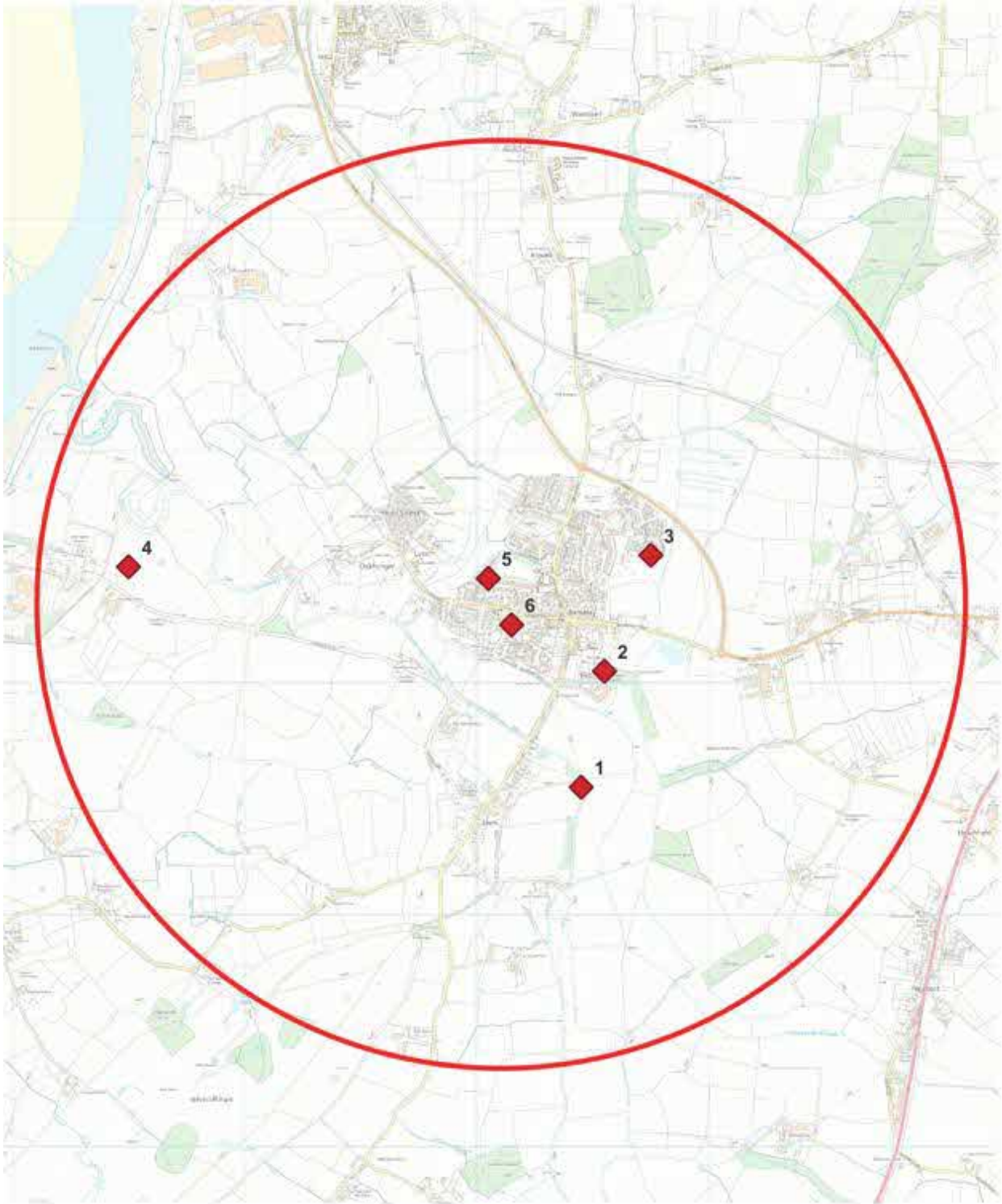
Where it is necessary to carry out an action that could result in an offence relating to a species protected under The Conservation of Habitats and Species Regulations 2017 (as amended), it is possible to apply for a protected species licence from Natural England. Licences are only issued where Natural England is satisfied that the relevant legal tests have been met including that works are unavoidable and that reasonable steps have been taken to ensure that adverse effects on protected species are minimised.

A1.2.2 Birds

All species of bird are protected under Section 1 (1) of the Wildlife and Countryside Act 1981 (as amended). Certain species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Section 1(5). There are special penalties where offences are committed for any Schedule 1 species.

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 includes 49 bird species which are of principal importance for the purpose of conserving biodiversity in England.

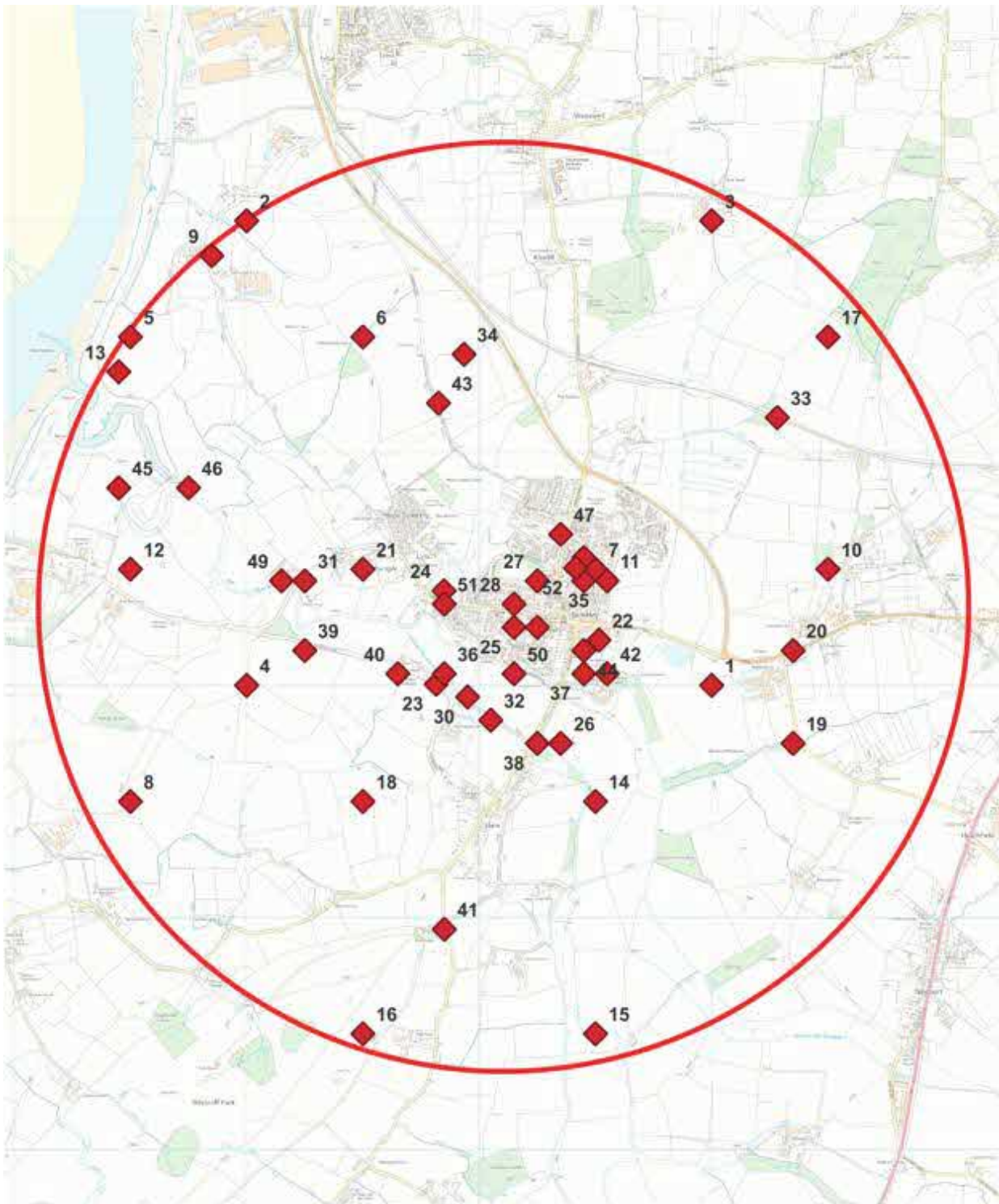
APPENDIX 2: GCER RECORDS OF BATS WITHIN 2 KM



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APPENDIX 3: GCER RECORDS OF ROOF-NESTING BIRDS WITHIN 2 KM



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APPENDIX 4: DNA ANALYSIS

Analysis Results

Sample Code	DNA Extraction Code	Species Identified	ID Method	Ct value	% match
SEL-1713-1	EG-2022-1595	Myotis mystacinus (Whiskered bat) Note: Brown long-eared bat suspected - tested for but not detected in this sample	qPCR	15	

APPENDIX 5: BAT AND BIRD BOXES

A range of bat and bird boxes could be incorporated into the renovated/converted buildings, or installed on other suitable walls or trees. All boxes must be installed according to manufacturer's instructions.

Bat Box Products

Examples of suitable bat boxes to be installed on flat walls include:

Schwegler 1FQ bat box

Beaumaris Woodstone bat box



Figure A5.1: Schwegler 1FQ bat box (left) and Beaumaris Woodstone bat box (right)

Suitable bat box products to be installed integral to the walling of the converted buildings could include:

Segovia Build-in Woodstone bat box

Schwegler 2FR Bat Tube



Figure A5.2: Segovia Build-in Woodstone bat box (left) and Schwegler 2FR Bat Tube (right)

Bird Box Products

Suitable bird box products to be installed on, or integrated into, suitable walls of the converted buildings could include:

- Schwegler 1SP sparrow terrace
- Vivara Pro WoodStone house sparrow nest box
- WoodStone build-in house sparrow nest box
- Schwegler 9a house martin nests
- Slide-out house martin apex nest
- Schwegler swift box No. 17
- Schwegler 16s swift box



Figure A5.3: Schwegler 1SP sparrow terrace (left), Vivara Pro WoodStone house sparrow nest box (middle) and WoodStone Build-in house sparrow nest box (right)



Figure A5.4: Schwegler 9A house martin nests (left) and slide-out house martin apex nest (right)



Figure A5.5: Schwegler swift box No. 17 (left) and 16S Schwegler swift box (right)