

PRELIMINARY ECOLOGICAL APPRAISAL AND PRELIMINARY BAT ROOST ASSESSMENT OF:

CARNWETHERS COUNTRY GUEST HOUSE
GREEN LANE
PELISTRY
ST MARY'S
ISLES OF SCILLY
TR21 0NX

Client: Mr Jeff Knowles

Our reference: BS31-2020

Report date: 21-4-20

Author: Darren Mason BSc (Hons)

Report peer reviewed: Sarah Mason

Report signed off: Sarah Mason

REPORT ISSUED IN ELECTRONIC FORMAT ONLY

This page is intentionally blank

Contents

Non-Technical Summary	4
1.0 Introduction	5
1.1 Survey and reporting	5
1.2 The application site.....	5
1.3 Details of proposed works	5
2.0 Methodology	7
2.1 Preliminary Ecological Appraisal - Desk Study.....	7
2.2 Preliminary Bat Roost Assessment.....	7
2.3 Classification of building	7
2.4 Surveyor details.....	8
3. Results	10
Preliminary Ecological Appraisal - Bats	10
3.1 Pre-existing information on bat species	10
3.2 Statutory and non-statutory sites.....	10
3.3 Habitats surrounding the application site.....	11
3.4 Habitats within the application site	13
Preliminary Roost Assessment.....	13
3.5 External	13
3.6 Internal.....	15
3.7 Summary	18
4. Assessment and recommendations (excluding bats)	19
4.1 Protected sites.....	19
4.2 Nesting birds	19
5. Assessment and recommendations (bats)	19
5.1 Survey constraints.....	19
5.2 Further survey requirements.....	20
5.3 Presence or absence surveys	20
5.4 Mitigation.....	21
6. Summary	21
7. Bibliography	23

Non-Technical Summary

- On 23rd June 2020, the Isles of Scilly Wildlife Trust (IoSWT) conducted a Preliminary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) of an outbuilding at Carnwethers Country Guesthouse, Green Lane, Pelistry, St Mary's, Isles of Scilly, TR21 0NX in order to establish baseline conditions, determine the importance of any ecological features within and around the survey area and to establish the actual or potential use of the building by bats to help inform the determination of a future planning application.
- This report outlines the findings of the PRA and provides advice based on the surveys' conclusions. As no planning application has been submitted to date, this assessment is primarily focused on the PRA of the building outlined in the supplied 'proposed elevations' drawings.
- During the PRA, an external/internal inspection of the building was undertaken (where accessible).
- Not all areas could be accessed and evaluated for roost potential and for evidence of bats.
- No evidence of nesting birds was found.
- The immediate habitat surrounding the proposed development and its link to the wider countryside provides optimal foraging and commuting habitat for several species of foraging bat including mature gardens, a network of small bounded agricultural fields and abundant semi-natural habitat
- The mixed outbuilding presented with limited features which may be used by both crevice dwelling species such as Common pipistrelle externally and internal features suitable for void dwelling species of bat such as Brown Long-eared bat. These features are most likely to provide suitable conditions for non-breeding summer or transitional roosts.
- The features of the building and the surrounding habitat suggest **low roost potential** for bats. The recommendations of this PRA are that two activity surveys are carried out, consisting of one dusk emergence and a separate dawn re-entry survey carried out within the bat active season between May and September.
- Aside bats, if the recommendations given in this report are adhered to, there should be no further ecological constraints to the proposal.
- **It must be noted that this report alone is not enough to support a planning application.**

1.0 Introduction

1.1 Survey and reporting

This report details the results of a preliminary ecological appraisal (PEA) and a preliminary bat roost assessment (PRA) of a mixed-use outbuilding that forms part of Carnwethers Country Guest House, Green Lane, Pelistry, St Mary's, Isles of Scilly TR21 0NX. The survey, carried out on 23rd June 2020, was undertaken in order to determine the importance of any ecological features within and around the survey area to establish the actual or potential use of the outbuilding by bats to help inform the determination of a future planning application.

1.2 The application site

The development is located at the southern end of Green Lane, Pelistry an area in the northern eastern part of the island of St Mary's (National Grid Reference SV9230611987). The application site is comprised of a large detached and extended guesthouse with two associated outbuildings, set within its own plot of mature gardens (see figure 1.).



Figure 1. Location

1.3 Details of proposed works

The work concerns the mixed-use outbuilding in the south-east corner of the plot (see Figure 2 – outbuilding outlined in solid red.) which includes extending the fabric of the building by a further 1m

south-eastwards; raising the roof of the south-east aspect to match the opposing side, to re-lay both aspects of the roof with modern slate tiles and to make alterations and additions to the fenestration of the building including new windows and doors on both elevations.



Figure 2. Location of outbuilding



2.0 Methodology

2.1 Preliminary Ecological Appraisal - Desk Study

A desk study data search was undertaken. This involved carrying out a review of the Local Records Centres (LRC) available records for bat species and publicly available datasets and citations of statutory designated sites of importance for nature conservation for sites within the zone of influence (ZOI) of the survey area (considered to be a maximum of 2km in this case). The desk study was also undertaken to identify habitats and features that are likely to be important for bats and assess their connectivity using aerial photographs.

2.2 Preliminary Bat Roost Assessment

The Preliminary Bat Roost Assessment comprised a survey of the building for bats, signs of bats and features potentially suitable for use by roosting bats, and an assessment of the surrounding habitat in terms of its suitability for commuting and foraging bats.

The survey consisted of a ground based inspection and a detailed search of the interior and exterior of the building (from ground level), looking for bats and/or evidence of bats including droppings (on walls and windowsills and in roof and loft spaces), rub or scratch marks, staining at potential roosts and exit holes, live or dead bats and features, such as raised or missing tiles, potentially suitable for use by roosting bats. Binoculars, a ladder and a high-powered torch were used as required.

2.3 Classification of building

The building was classified according to its suitability for use by roosting bats. The classification was dependent on a number of factors including (but not limited to):

- Bats and/or signs of bats;
- External and internal features potentially suitable for use by roosting bats (e.g. raised or missing tiles, gaps behind fascia boards etc);
- Setting;
- Night time light levels;
- Disturbance levels;
- Proximity of suitable foraging habitat and commuting routes (e.g. ponds, streams, woodland, large gardens, hedgerows).

The categories used to classify buildings and the survey effort required to determine the presence or absence of bats (as per the Bat Conservation Trust’s Bat Survey Guidelines¹, referred to by Natural England in their standing advice to planning officers) are described in Table 1 (see below).

2.4 Surveyor details

The survey was undertaken by Darren Mason BSc (Hons) of the Isles of Scilly Wildlife Trust. Darren has undertaken professional Bat Licence Training and holds a Natural England WML-A34-Level 2 (Class 2 License); registration number: 2020-46277-CLS-CLS which permits him to survey bats using artificial light and endoscopes and capture bats using hand and hand-held static nets.



Photo 2. North-west elevation

Table 1 – Description of the categories used to classify a building’s bat roost potential and the survey effort required to determine the likely presence or absence of bats

	Roost status	Description	Survey effort required to determine the likely presence or absence of bats
Bat Roost Potential	High	Numerous features potentially suitable for use by roosting bats, optimal or good quality bat foraging habitat nearby and good habitat connectivity. Alternatively, a building with fewer features potentially suitable for use by roosting bats and optimal foraging habitat nearby.	Three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey.
	Moderate	More than a few features potentially suitable for use by roosting bats, good foraging habitat nearby and limited habitat connectivity. Alternatively, a building with a few features potentially suitable for use by roosting bats but optimal foraging habitat nearby.	Two or three dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Low	Only a few features potentially suitable for use by roosting bats but good bat foraging habitat nearby. Alternatively, a building with more than a few features potentially suitable for use by roosting bats but sub-optimal foraging habitat nearby and limited habitat connectivity.	One or two dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Negligible	Very few features potentially suitable for use by roosting bats and / or in an area (such as a densely populated urban area) which has limited habitat connectivity and poor foraging habitat.	No further surveys required.

Table 1. Categorising and classifying a building’s bat roost potential

1 Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust

3. Results

Preliminary Ecological Appraisal - Bats

3.1 Pre-existing information on bat species

The desk study showed that no species of bat had previously been recorded within the building. A data search of LRC records for bats revealed information on 5 species of bat recorded within the 2km ZOI of the site. The species conclusively identified were Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Brown Long-eared Bat (*Plecotus auritus*) both UK Biodiversity Action Plan (BAP) priority species and the rare Leisler's Bat (*Nyctalus leisleri*) and Nathusius Pipistrelle (*Pipistrellus nathusii*). Eighteen bat roosts are known to exist within 2km of the proposed development, with 5 known roosts within 500m of the property, the nearest being located 199m due north of Carnwethers.

3.2 Statutory and non-statutory sites

In addition, the desk study revealed the presence of the following statutory designated sites within the 2Km ZOI of the site:

- i.) **Lower Moors SSSI** – Situated 1.5km due south-west of Green Farm Cottage lies Lower Moors SSSI. A topogenous mire that has a range of wetland habitats supporting a diverse range of wetland wildflower species, including the Nationally Scarce Tubular Water-dropwort (*Oenanthe fistulosa*). The site also holds locally important populations of Royal Fern (*Osmunda regalis*) and Southern Marsh Orchid (*Dactylorhiza praetermissa*) and is particularly important feeding for passage and wintering birds including Corncrake (*Crex crex*) and Spotted Crake (*Porzana porzana*).
- ii.) **Higher Moors & Porth Hellick Pool SSSI** – 900m south of the proposed development is Higher Moors SSSI. A topogenous mire designated for several rare and notable plant species) including; Bog pimpernel (*Anagallis tenella*), Star Sedge (*Carex echinata*) and Marsh St John's-wort (*Hypericum elodes*).
- iii.) **Porthloo SSSI** – Situated 1.6km west of the proposed development lies Porthloo SSSI designated for its geology, particularly for its Quaternary sediments in the cliffs that show changes in the climates and environments of the Quaternary period in Scilly.

iv.) **Watermill Cove SSSI** – Lying 250m north-east of Green Farm Cottage, Watermill Cove SSSI is designated for its cliff exposures of Quaternary sediments, that clearly show the sequence of changes in the climate and environment during the Quaternary period.

3.3 Habitats surrounding the application site

Carnwethers Country Guest House is in the north-east region of the island of St Mary's, situated at the southern end of an area known as Pelistry. The area comprises of 8 detached or semi-detached dwellings (including Green Farm Cottage) and a large farm holding. Carnwethers can be found adjacent to Pelistry Farm at the southern end of Green Lane farm track.

This track is bounded on both sides by a mix of both native hedgerow comprising of Hawthorn (*Crataegus monogyna*), Dutch Elm (*Ulmus x hollandica*) and rare Sweet Chesnut (*Castanea sativa*) which primarily encloses improved cattle-pasture and non-native hedgerow dominated by Karo (*Pittosporum crassifolium*) which encloses small cultivated bulb fields or productive 'fallow' leys, immediately to the north and west of the development. This patchwork of improved pasture and cultivated fields and their inter-linking hedgerows is dominant for at least 900m north and south, 1.5km west and 600m east of the proposed development.

This contiguous habitat links important habitat used by bats including the Elm tree-lined stream at Watermill, the large coniferous shelterbelt of Monterey and Lodgepole Pine (*Pinus radiata* and *Pinus contorta*) at Trenoweth (200m and 900m north respectively). Likewise, this connectivity continues southwards and south-westward reaching the wet woodland at Holy Vale (600m south-west) and the large wet woodlands and reedbeds at both Lower (1.5km south-west) and Higher Moors SSSIs (900m due south).

Several large areas of open habitat are also linked by this contiguous hedge network including the coastal headlands consisting of their mosaic of maritime grassland, heathland and scrub which are grazed for conservation purposes (1.3km south-east), the local airport 1.4km south-west dominated by mown semi-natural grassland of varying height as well as the golf course with its very short mown grassland and heathland sward 1.5km west.

In summary, the habitats surrounding the proposed development and links to the wider countryside provide optimal foraging habitat for species in the *Pipistrellus* genus and Leisler's bat, particularly as it has been shown that these species require 'edge' habitat (such as hedgerows, tree-lined lanes or woodland edge) to both feed from and to use as commuting routes to other feeding areas^{2,3,4&5}. This habitat is particularly contiguous for at least 1.5km west, south-west and south-east, providing access to a wide variety of habitats for which these species are known to take advantage⁶. This continuity of habitat is also important for both Soprano and Nathusius Pipistrelle as it provides feeding corridors to their preferred habitat of open water and watercourses^{2,3&4}, such as Lower and Higher Moors SSSIs and other riparian habitats such as those found at Watermill and Holy Vale. As these habitats fall within the core sustenance zones of all 3 pipistrelle species (1.7km, 1.5km and 3km respectively⁷) the location of Carnwethers makes it suitable as a potential roost site.

Brown Long-eared bat have been shown to prefer to feed in open canopy deciduous woodland typically located close to their roosts. Larger tracts of woodland should be available (no greater than .5km away⁸), making the shelterbelt and tree-lined stream at Watermill and its onward link to Trenoweth Shelterbelt potential feeding sites. Despite the distance the woodland at Holy Vale 600m to the south-west could be reached by utilising the small native shelterbelt due south of the cottage and the native hedges that link Holy Vale to the area surrounding the development. Although there is initially little woodland cover in this direction, Brown Long-eared bats are known to emerge from their roosts much later than other species of bat due to their method of feeding and the type of prey they take which reduces the need for cover and avoids the risk of predation⁹. All sites also fall within this species' core sustenance zone of 1.1km¹⁰.

Leisler's bat also takes advantage of woodlands, particularly woodland edge¹¹, making the woodland blocks at Trenoweth and Lower and Higher Moors suitable as feeding sites, as would the smaller woodland block at Holy Vale. As Leisler's bat has a large core sustenance zone of 4.2-7.4km⁵, the Garrison 3km to the south-west could also be used. Leisler's bats in England are also known to take advantage of open areas of pasture⁵, making the immediate area surrounding the property, the coastal headlands to the south-east, the golf course and the airport to the west and south respectively potential feeding areas. This contrasts with most other species of bat which typically avoid this type of open habitat, particularly during peak times of prey abundance (dusk and dawn) to avoid predation^{12&13}.

3.4 Habitats within the application site

Set within its own grounds Carnwethers is bounded on three sides (north-west, north-east and south-east) by non-native Karo and Tree Bedstraw (*Coprosma repens*) hedgerow, which is also used to divide the garden into 4 separate sections. Section 1 is broadly 'L-shaped' circling the south-west and south-east of the property. Several mature trees including Monterey Pine, Sweet Chestnut, Sycamore (*Acer pseudoplatanus*) and Pedunculate Oak (*Quercus robur*) dominate the south-west corner, whilst below and running along the length of the south-east side of the building the section is laid to lawn, which is well-mown. Section 2 dominates the centre of the plot and encompasses mature borders surrounding the swimming pool. The mature borders include several tree species including Ash (*Fraxinus excelsior*) immediately adjacent to the north-west elevation, Hawthorn (*Crataegus monogyna*), European Olive (*Olea europaea*) and Cabbage Palm (*Cordyline australis*). Whilst below shrubs including Snow-rose (*Rhododendron* sp.), Butterfly Bush (*Buddleja davidii*), Chilean Gum box (*Escallonia* sp.), Bottlebrush (*Callistemon* sp.), French Hydrangea (*Hydrangea macrophylla*), Tutsan (*Hypericum androsaemum*) and Rosemary (*Salvia rosmarinus*) dominate the field layer. Sections 3 and 4, to the north-west of the pool area are laid primarily to lawn, with a similar mix of shrubs within the borders and include tree specimens such as Bull bay (*Magnolia* sp.), Blue Gum (*Eucalyptus* sp.) and Cherry (*Prunus avium*).

In summary, the garden and immediate habitats surrounding Carnwethers provide cover for bats within 10m of the outbuilding and there are many species of shrub and plant that may attract a wider variety of invertebrates which bats may prey upon, making the immediate habitat optimal for bats to feed and leave and enter a roost safely.

Preliminary Roost Assessment

This assessment will focus only on those elements of the property which are to be directly affected by the proposals contained, for clarity and brevity. This is restricted to the outbuilding in the south-east corner of the plot of Carnwethers Country Guesthouse (see Figure 2 for location).

3.5 External

The outbuilding at Carnwethers can be split into two halves, north-west and south-east, but are broadly constructed with the same materials and with the south-eastern half having a lower roofline than the north-western component. The building is constructed of granite block and well-pointed for the most part, with some mortar missing from its north-east elevation (see photo 3) and along the top of the 2 wall-



Photo 3.

plates on the south-east elevation, which may be suitable for roosting bats (see photo 4). At the time of survey bird droppings were found below the gap of the eastern most wall plate, but no nesting birds were recorded. Full height windows and associated doors dominate the south-east elevation which are wooden in construction, which in places have timber clad surrounds. Several crevices are present between the window frames and the

uneven external walls (see photo 5). Likewise, between the timber cladding and wall at the eastern end of the south-east elevation, both would provide suitable roosting conditions for bats, or access into the interior of the building. A single timber-framed window was present on the north-east elevation but was well fitting and offered no opportunities for bats to roost. No other windows were present on the remaining elevations.

Fascia with or soffit boards run along the eaves of all four elevations, with several gaps created between the fascia or soffit boards and the natural irregularity of the granite stonework, particularly along both the south-west and south-east elevations (see photo 6). These present with potential roosting opportunities behind the boards themselves,



Photo 4.

Both components of the building have single-pitched roofs with a pitch of approximately 15° , constructed of different materials and with the south-east aspect having a lower roofline (approximately .5m), which is well tied into the opposing aspect with mortar. The south-east roof is constructed of corrugated fibre-cement sheets, that sit on top of the fascia which present with many



Photo 5.

The north-west elevation held a wooden framed door, whose frame was well tied-in to the surrounding granite stonework. However, the door was open during the survey, which if left permanently open could provide access for bats. An assessment of the features of the far northern corner of the north-west elevation was not possible as it was partially obscured by a mature *Rhododendron* species and Tree Fuchsia (*Fuchsia excorticata*)

3.6 Internal

The south-east component of the building comprised of a workshop with floor to ceiling shelving and a worktable along the full length of the rear (north-west) and left-hand (south-west) walls. The interior is well-lit and appears to be regularly used, albeit for brief periods. Abundant House Mouse (*Mus musculus*) and Brown Rat (*Rattus norvegicus*) droppings were found on the floor, worktable, the shelving,

gaps along the full length of the eaves that bats may utilise to gain access into the interior of the building. The joins between the sheets could not be searched as solar thermal panels for the swimming pool and their associated frame covered 80% of the roof surface.

The north-west aspect is constructed of pre-formed ridged metal roof-sheets, with 3 raised opaque and equally spaced rooflights in the centre. These are well tied into the roof with zinc flashing and present with no opportunities for bats to roost, as does the raised corrugated profile of the roof sheet at the eaves which has been filled within foam insulation material.

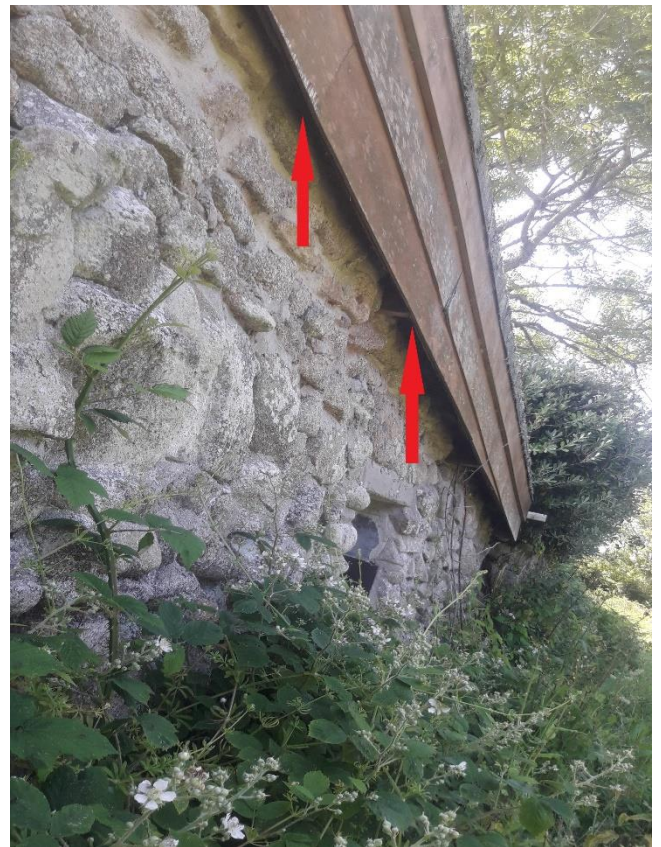


Photo 6.

and their contents. The roof was open, with no ceiling void present and simply built with modern treated timbers and butt joints. These joints do not appear to provide any roosting opportunities for bats, but free-hanging bats could take advantage of the rafters and open interior. Along the top of the wall plate of the rear wall several tears in the felting (see photo 7.) and a redundant pipework hole permitted access to the roof-space of the opposite elevation and the cavity between the two components of the building respectively. Both offer either access to other roosting opportunities or offer roosting opportunities themselves.



Photo 7.

The interior of the north-west component of the building is split into 3 rooms, a kitchen/washroom, a storeroom and a sauna and shower area. Both the kitchen and storeroom walls comprised of exposed, modern concrete blocks, whilst the sauna and shower room were constructed of timber clad stud-walling. Previous pipework holes in the cladding (see photo 8) provides roosting opportunities for bats, as they provide access to the cavity between the two components of the building. The roof is clad throughout with hardboard and marine plywood, including the recesses for the raised rooflights in each of the rooms. Here, particularly in the kitchen and sauna area where the rafters were cut through the timber cladding, gaps leading into the roof space above provides opportunities for bats (see photo 9.). Inspection however of the surrounding timber revealed no staining through regular use.



Photo 8.



Photo 9.

Access by bats into the roof void is also possible through gaps in the woodwork either side of the loft hatch (see photo 10). The roof void itself is insulated and un-cluttered. The air during the survey was hot



Photo 10.

and humid, making the conditions ideal for a roost. However, these conditions may fluctuate throughout the day due to the in-effective heat retaining metal roofing sheets. The original triangular roof frame of rafters, purlins and battens appears to have been built-up to achieve the extra .5m height. The main rafters sit on the central wall plate and the frame is constructed with butt joints, leaving no crevices. However, the square battens (see photo 11.), the rafters and the open space of the roof void provides free-hanging roosting and flight space (prior to emergence) for species such as Brown Long-eared bat. On inspection Brown Rat droppings were numerous, but no evidence of bat droppings was recorded.



Photo 11.

In general, the interior of the north-west component of the outbuilding is light and airy and is well-maintained. The nature of the building suggests that it is more likely to be used more frequently during the summer months when guests will be using the pool and less frequently outside of the tourist season. Access to the interior of the north-west component of the building is possible by the door, therefore unless this door remains open, it is unlikely to offer any long-term roosting opportunities for bats.

3.7 Summary

The outbuilding at Carnwethers Country Guesthouse presents with several features associated with the building which are considered suitable for a transition or non-breeding summer roost, particularly for crevice dwelling species such as Common or Soprano pipistrelle. These include features behind the soffit or fascia board along the eaves, gaps between the window frames/timber cladding and the exterior granite blockwork. Though the roof void presents with suitable flight space and roosting perches for species such as Brown Long-eared bat, access to the roof void is restricted primarily to features found inside both component parts of the outbuilding and access to these features from the outside is limited to very few permanent features, or temporary features such as the open door on the north-west elevation.

4. Assessment and recommendations (excluding bats)

4.1 Protected sites

The proposed development falls within the main SSSI Impact Risk Zones of Lower Moors and Higher Moors SSSIs. Impact zones are used in the assessment of planning applications for likely impacts on SSSI's, Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites (England). However, the likely attributable impact in these zones is for residential developments of 100, or 50 or more houses outside existing settlement/urban areas. The proposals under consideration are highly unlikely to impact on the SSSIs.

4.2 Nesting birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Section 1 of this Act makes it an offence to kill, injure or take any wild bird, or intentionally to take damage or destroy the nest of any wild bird while that nest is in use or being built¹⁴. During this survey, no evidence of nesting birds was identified. However, if work was to commence between the months of March and August inclusive, then the site would need to be checked first for nesting birds and if, any evidence of breeding activity was found, or nests are identified works that would disturb the adults, the nest or young must be postponed until all young have fledged the nest and it is no longer in use.

5. Assessment and recommendations (bats)

5.1 Survey constraints

The survey was undertaken at a time of year suitable for undertaking preliminary bat roost assessments, during the main summer active season. However, a full inspection of the north corner of the north-west elevation could not take place due to dense vegetation covering the blockwork and inspection of the majority of the south-east roof aspect was not possible due to the installation of the solar thermal panels for the swimming pool. All other areas of the proposed development were assessed for their roost potential.

5.2 Further survey requirements

Carnwethers Country Guesthouse outbuilding is considered to provide 'low' potential to support roosting bats (see Table 1). This assessment is based on the occurrence of the following features within or immediately adjacent to the site:

- The building has limited features which would provide suitable roosting habitat for a small number of crevice dwelling bats – most likely as a transition or a non-breeding summer roost, with a lower likelihood of use for maternity or hibernation roosts.
- The building has limited features that would provide suitable roosting habitat for Brown Long-eared bat.
- Access to the internal roof void is limited to features within the component parts of the building, with very limited access to these from the exterior
- The building is situated within optimal foraging habitat in a dark environ with excellent connections to the wider landscape.

To confirm whether this proposed development site hosts roosting bats, further surveys need to be undertaken during the bat active season (see section 5.3).

5.3 Presence or absence surveys

The Bat Conservation Trust's Bat Survey Guidelines¹ (referred to by Natural England in their advice to planning officers) state that buildings with 'low' bat suitability require one to two separate survey visits between May and September, with at least one undertaken between May and August. These surveys should consist of either two dusk emergence surveys, or one dusk emergence survey and a separate dawn re-entry survey.

The surveys should take place in optimum weather conditions, in order to maximise the likelihood of recording bats, with dusk air temperatures exceeding 10⁰C and not rain or strong wind.

Dusk emergence surveys should commence 15 minutes before sunset and continue for 1.5 – 2 hours after sunset. A pre-dawn re-entry survey should commence 1.5 – 2 hours before sunrise and continue until 15 minutes after sunrise.

Sufficient surveyors should be used on each survey so that all aspects of the building can be viewed at one time, therefore the building should be adequately surveyed by two surveyors and a night vision camera. Surveyors should be positioned no more than 50m away from the buildings with an awareness of the likely exit/access points and potential roost locations. Each surveyor should be equipped with a bat detector and recording equipment and should count the number and species of bats and their activity in a defined area.

If no roosts are found during the presence or likely absence surveys, then no further surveys would be required.

5.4 Mitigation

To comply with planning policy and wildlife legislation (both domestic and European) it will be necessary to ensure that following the development the "favourable conservation status" of bats will be maintained. This means that, where a roost will be lost, appropriate mitigation needs to be provided.

If roosts are confirmed then further detailed roost characterisation survey may be required to establish how bats use the roost, the intensity of use and what features and characteristics of the roost and the surroundings are important. The information gained would allow an accurate assessment of the potential impacts of the development on bats and inform the requirement of a European Protected Species Mitigation licence, to be considered and issued by Natural England prior to the works commencing.

6. Summary

The outbuilding at Carnwethers Country Guesthouse was found to have low potential to support transition or non-breeding summer roosts for cavity dwelling species such as Common and/or Soprano pipistrelle and Brown Long-eared bat.

To assess whether bats roost in the main building or utilise the outbuildings, two further surveys are recommended; one dusk emergence and a separate dawn re-entry survey carried out between May and September, with at least one being carried out between May and August. Each survey would require two surveyors to be strategically positioned to ensure all potential roosting features which may be affected by the proposals can be observed. If bats are found to be roosting in the dwelling the status of the roost(s) will need to be identified. Likewise, if bats are shown to preferentially utilise the eastern and southern

hedgerows further surveys will then be required to inform a mitigation strategy which would need to be implemented.

Aside from bats, if the recommendations given in this report are adhered to, there should be no further ecological constraints to the proposals.

7. Bibliography

1. Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust
2. Vaughan N, Jones G, Harris S (1997) *Habitat use by bats (Chiroptera) assessed by means of a broad-band acoustic method*. J Appl Ecol 34:716-730
3. Russ JM, Montgomery WI (2002) *Habitat use associations of bats in Northern Ireland: implications for conservation*. Biol Conserv 108:49-58
4. Nicholls B, Racey PA (2006) *Habitat selection as a mechanism of resource partitioning in two cryptic bat species Pipistrellus and Pipistrellus pygmaeus*. Ecography, vol 29 (5) 697-708
5. Waters, D, Jones, G and Furlong, M. (1999). *Foraging ecology of Leisler's bat (Nyctalus leisleri) at two sites in southern Britain*. Journal of Zoology 249: p173-180
6. Russ, J.M. and Montgomery, W.I. (2002). *Habitat associations of bats in Northern Ireland: implications for conservation*. Biological Conservation 108. P.49-58
7. Watts-Davidson, I. & Jones, G. (2005). *Differences in foraging behavior between Pipistrellus and Pipistrellus pygmaeus*. Journal of Zoology 268. P. 55-62
8. Entwistle, A.C., Racey, P.A. and Speakman, J.R. (1997). *Roost selection by the brown long-eared bat Plecotus auritus*. Journal of Applied Ecology 34. P399-408
9. Swift, S.M. (2010). *Long-Eared Bats*. T & AD Poyser. A&C Black Publishers Ltd, London.
10. Swift, S.M. & Racey, P.A. (1983). *Resource partitioning in two species of vespertilionid bats (Chiroptera) occupying the same roost*. Journal of Zoology 200 p.249-259
11. Shiel, C.B., Duverge, P.L., Smiddy, P. and Fairley, J.S. (1998). *Analysis of the diet of Leisler's bat (Nyctalus leisleri) in Ireland, with some comparative analyses from England and Germany*. Journal of Zoology 246: p417-425
12. Downs N, Racey PA (2006). *The use by bats of habitat features in mixed farmland in Scotland*. Acta Chiropterologica, vol 8:169-185
13. Jones, G. and Rydell, J. (1994). *Foraging Strategy and Predation Risks as Factors Influencing Emergence Time in Echolocating Bats*. Biological Sciences, Vol 346, Issue 1318: p445-455
14. H.M.S.O. (1981). *The Wildlife and Countryside Act 1981 (as amended)*. London.