# PRELIMINARY ECOLOGICAL APPRAISAL & PRELIMINARY BAT ROOST ASSESSMENT OF:

BARN 10 CARN FRIARS FARM CARN FRIARS ST MARY'S ISLES OF SCILLY TR21 ONZ

*Client: Mrs A Jenkins Our reference: BS36-2020 Planning Application no: P/20/075 Report date: 18<sup>th</sup> November 2020 Author: Darren Mason BSc (Hons) Report peer reviewed: Sarah Mason Report signed off: Sarah Mason*  REPORT ISSUED IN ELECTRONIC FORMAT ONLY

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# **Non-Technical Summary**

- On 18<sup>th</sup> November 2020, the Isles of Scilly Wildlife Trust (IoSWT) conducted a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of Barn 10, Carn Friar Farm, Carn Friar, St Mary's, Isles of Scilly TR21 0NZ 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 planning application P/20/075.
- This report outlines the findings of the PEA and PRA assessment and provides advice based on the surveys' conclusions.
- During the PRA an external/internal inspection of the building was undertaken (where accessible).
- Barn Swallows were confirmed utilising nesting habitat associated with the bottom chord of the roof trusses of the open gabled component of the barn.
- The immediate habitat surrounding the proposed development presents optimal habitat for foraging bats including orchards, mature trees, a network of small agricultural fields and hedgerows that link to the wider countryside and abundant semi-natural habitat.
- The barn offers features both externally and internally, which could be used by crevice-roosting species such as common pipistrelle. The features are most likely to provide suitable conditions for a non-breeding summer or transitional roost.
- The barn's open internal space and exposed roof trusses also provide suitable conditions for a night roost for all species of bat recorded from the area.
- Taken in combination, the characteristics of the building and the surrounding habitat suggests low roost
   potential for bats
- The recommendations of this PEA and PRA are that one activity survey is carried out, consisting of one dusk emergence survey carried out within the bat active surveys season between May and September.
- Aside from bats and nesting birds, no other ecological constraints are identified which require consideration to inform the determination of this planning application.
- It must be noted that this report 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 Barn 10, Carn Friar Farm, Carn Friar, St Mary's, Isles of Scilly TR21 0NZ. The survey was carried out on 18<sup>th</sup> November 2020.

#### **1.2** The application site

Barn 10 is located on the south-east side of St Mary's, set in a rural location on a south-west slope overlooking Porth Hellick Pool (National Grid Reference SV9255410954). The application site is comprised of a large agricultural barn, set within a plot of mature gardens that stretch south-west and southeastwards which contain associated outbuildings and existing residential accommodation (see Figure 1. below).



Figure 1. Barn 10, Carn Friar Farm general location



Photo 1. View of the north-west elevation of Barn 10

### **1.3 Details of proposed works**

The planning application (P/20/075) proposes the demolition of the existing block-built barn and replacing it with a holiday let and winter farm staff quarters on a larger footprint, including a 2 story extension to the south and a change in the roof aspect at the western end of the barn.

# 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 a high-powered torch and endoscope 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 several 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 Guidelines<sup>1</sup>, 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, endoscopes, hand and hand-held static nets.

# 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
ial	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.
loost Potent	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).
Bat R	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**

#### 3.1 Pre-existing information on bat species

The desk study showed that bats have previously been recorded within Barn 10, Carn Friars Farm. A data search of LRC records for bats also 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, the rare Leisler's Bat (*Nyctalus leisleri*) and Nathusius Pipistrelle (*Pipistrellus nathusii*). Twenty bat roosts are known to exist within 2km of the proposed development and nine within 1km of the application site.

#### 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 1.2km due west of Barn 10 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 reglis*) and Southern Marsh Orchid (*Dactylhoriza 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 100m south-west 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.) Peninnis Head SSSI Lying 1.7km south-west of the proposed development is Peninnis Head SSSI. The site designated primarily for its maritime heathland, maritime grassland and scrub habitats together with good populations of several rare plant and lichen species, in addition to its significant quaternary geomorphology.

#### **3.3 Habitats surrounding the application site**

Barn 10, Carn Friars Farm is in a rural setting on the south-east side of the islands of St Mary's. The land immediately to the east (for approximately 320m) of the application site comprises of a series of small, fields enclosed by non-native hedgerows which are used as orchards and paddocks for horses. The land immediately to the north consists of a similar mosaic of small, enclosed cultivated fields used for flowerfarming which are contiguous for approximately 1km. These fields are interspersed on occasion by small Elm (Ulmus sp.) copses, shelterbelts of Monterey Pine (Pinus radiata), Lodgepole Pine (Pinus contorta) and rarely Sitka Spruce (Picea sitchensis) and fields dedicated to livestock pasture. Immediately south-west of the application site is the wetland of Higher Moors SSSI consisting of a mosaic of fen, reedbed willow carr and open water habitats. This wetland stretches north-westwards for approximately 800m into the wet woodland of Holy Vale. Beyond the immediate surroundings of Barn 10, the hedgerows make an almost contiguous habitat providing a link to a range of habitats including the open headlands of Porth Hellick and Salakee Down which consist of a mosaic of coastal grassland, heathland and scrub to the east and south respectively and the reedbeds, wet woodland and open water habitats of Lower Moors SSSI (1.2km) to the west with the well-mown, neutral grassland of the airport approximately 800m south-west of the application site. Beyond Lower Moors SSSI and to the west the habitat becomes more urban with the wider conurbation of Hugh Town; an urban area which has a variety of sized properties and gardens.

There is no street lighting in the area of the proposed development, the nearest being 300m northeastwards at Normandy House and the swimming pool.

In summary, the immediate habitat surrounding the proposed development provides optimal foraging habitat for species in the Pipistrellus genus, Brown Long-eared Bat and Leisler's Bat, as it has been shown that these species of bat 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<sup>2,3&4</sup>. The continuity of small hedgerow-bound fields, particularly to the south and west is also important for both Soprano and Nathusius Pipistrelle as it provides feeding corridors to their preferred habitat of open water and water courses<sup>2,3&4</sup>; habitats such as those found at both Higher and Lower Moors SSSIs and Holy Vale. The location of Barn 10 makes it suitable as a potential roost site as it falls within the core sustenance zones of all 3 pipistrelle species these being 1.7km, 1.5km and 3km respectively<sup>5</sup>.

Brown Long-eared bat have been shown to prefer to feed in open canopy deciduous woodland typically located close to their roosts, with larger tracts of woodland available to feed no greater than .5km away<sup>6</sup>. Therefore, the large willow carr blocks 500m immediately south-west at Higher Moors SSSI, the wet woodland blocks of Holy Vale, along with the scattered shelterbelts to the north and north-west act as potential feeding sites. All these sites fall within this species core sustenance zone of 1.1km<sup>7</sup>, but the lack of tree cover in the immediate area of the property may limit the sites' use as a roost. However, 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 prey taken which reduces the need for cover to avoid the risk of predation<sup>8</sup>. Likewise, Leisler's Bat will also take advantage of woodlands, particularly woodland edge, making these woodland blocks suitable as sites to feed as would the woodland blocks at Trenoweth 1.7km due north and the large shelterbelt at the Garrison 2.7km due west for the former species as is known to have a large core sustenance zone of 4.2-4.7km<sup>9</sup>.

In England Leisler's Bat utilises open areas of semi-natural grassland and grazed pasture with scattered hedgerows to feed<sup>10,&11</sup>, making the airfield, Salakee and Porth Hellick Downs potential feeding sites. Feeding in open areas contrasts with most other species of bat which typically avoid this type of habitat, particularly during peak times of prey abundance (dusk and dawn) to avoid predation<sup>13&14</sup>. However, it has been shown that island species of bat including Common Pipistrelle in the UK will utilise open spaces to feed, including the strand-line along beaches<sup>15</sup>, thereby providing further feeding opportunities for this species within 250m of the proposed development at Porth Hellick Bay.

Street lighting (which has been shown to negatively impact upon bats commuting and foraging routes<sup>16</sup>) does not exist within the general area of the proposed development, therefore no impact would be expected upon bats commuting and foraging habits. Instead, the location of the nearest street lights, the habitat they are found in and their relatively low light emitting levels may actually provide feeding opportunities for both Common Pipistrelle and Leisler's bat which are both known to take advantage of the insectivorous prey that often congregates around lights<sup>17</sup>.

#### **3.4** Habitats within the application site

Barn 10 is a block-built barn over one and two storeys sitting within the larger complex of Carn Friars Farm. The area immediately to the north and sitting slightly higher than Barn 10 is the main granite 2 storey farmhouse and the hardstanding of another former barn now used for storage. Attached to the southern elevation of the farmhouse are two PIR security lights, which when activated will illuminate the roof of Barn 10, which has the potential to cause temporary disturbance to any roosting bats. The boundary to the north is a low dry-stone wall and the main road. Immediately to the west of Barn 10 is a second granite 2 storey cottage, which to south-west stand numerous outbuildings set on different aspects. The boundary west of the second cottage is a mature elm hedgerow. Immediately to the south of Barn 10 is an area of improved grassland of Perennial Rye-grass (*Lolium* perenne) and Cock's-foot (*Dactylis* glomeratus), with rare Red Campion (*Silene dioica*), Bristly Ox-tongue (*Helminthotheca echioides*) and Bittersweet (*Solanum dulcamara*). Set within the grassland are several mature 'Bramley' Apple trees (*Malus domestica*), with rare Wild Cherry (*Prunus* avium), Tree Mallow (*Lavatera arborea*) and Giant Viper's Bugloss (*Echium pininana*). The grassland is bounded to the east by a pollarded Dutch Elm (*Ulmus x hollandica*) hedgerow. Beyond the improved grassland to the south of Barn 10 a cultivated area with a mixture of ruderal species including Annual Mercury (*Mercurialis annua*), Musk Stork's-bill (*Erodium moschatum*), Common Nettle (*Urtica dioica*) and Broad-leaved Dock (*Rumex obtusifolius*) and cultivated species such as Marigold (*Tagetes* sp.) and Bermuda Buttercup (*Oxalis pes-caprae*) is present. Beyond this area there are several polytunnels bounded by mature elm hedgerows.

In summary, the immediate habitat within the proposed development footprint is of limited ecological value with few species that may attract a wide variety of invertebrates which bats may prey upon. However, the shelter provided by the mature apple trees and elm hedgerows immediately south and east of Barn 10 provides cover for bats leaving a roost as well as foraging opportunities, as do the numerous outbuildings and hedgerows surrounding the farm. It is these hedgerows which will provide a link to the wider countryside which is optimal for both feeding and commuting bats.

#### **Preliminary Roost Assessment**

#### 3.5 External

Barn 10 is a single-skin, block-built concrete rendered agricultural barn with a roughly north-west/southeast aspect. On the south-east elevation an exposed block-built, redundant water tank is present (not capped). The barn can be split into two distinct components. The first is an open gable-ended barn, with a roof of corrugated fibre cement roofing sheets and ridge tiles with a north-west/south east aspect and an approximate pitch of 19<sup>0</sup>. Throughout, there are several cracks in the render, but none deep enough to provide roosting opportunities for bats. There are 2 single-glazed wooden-framed windows and a single wooden stable door on the north-west aspect which offered no gaps between the wall and their frames which might permit a bat to roost between. However, the glazing in the windows was missing (see Photo 2) in places providing access into the interior of the building. Two further single-glazed wooden windows were found on both the south-east aspect and at the apex of the western gable end of the building, both were in good order, providing no opportunities for bats to roost.

Fire damaged fascia is present along the full length of the north-west elevation of the gable ended barn.



Photo 2. Location of crevices and lack of glazing in windows

The damage to the fascia has created gaps, which bats could roost behind (see Photos 2 and 3). Inspection of these crevices revealed a void behind the fascia running the full length of the elevation created by the gap between the fascia and its opposing tie beam sitting on the wall plate. This could be clearly seen on the south-east elevation, where no fascia was present.



Photo 3. Crevice leading to void behind the fascia

At the eaves of the western gable end, gaps between the wall plate and fascia were present, permitting access into the same void (see Photo 4 and 5.)

On the south-east aspect the combination of a loss of render and a rotten roof joist (where the skillion roof ties into the western gable end of the two storey component of the barn) creates a void which runs the full width of the building, which offers roosting opportunities for crevice dwelling bats (see Photos 6 and 7.)





Photo 5. Void between fascia and tie beam (unseen)

Photo 4.



Photo 6.



Photo 7. Void between roof joist and partition wall of building

The second component of the barn is a single-storey building, with a skillion roof of plastic corrugated sheets with a west aspect and an approximate pitch of 12<sup>0</sup>. The skillion roof is tied into the main component of the building with lead flashing. The north-west elevation is dominated by a large timber-framed entrance, providing access into this part of the building. There are crevices between the frame and the adjacent wall, providing a potential roosting space for bats (see Photo 8). Likewise, along the full length of the western elevation a gap between the wall plate and the roof (created by the rafters) also provides access into and out of this part of the barn (see Photo 9). A single-glazed, timber-framed window is present below this gap. All fenestration, including another window on the south-east elevation, is in good order and provides no opportunities for bats to roost. Adjacent to the window on the south-east elevation is a large crack which runs from roof to floor on the south-west aspect which offers roosting opportunities, particularly the upper-third of the elevation (see Photo 10.)





Photo 8.



#### 3.6 Internal

The internal space of the western part of Barn 10 is completely open to the roof. No roofing membrane is present, exposing the plastic corrugated sheets, the joists and the rafters they sit on. The frame is constructed with modern butt joints which provide no gaps, or crevices wide enough for bats to utilise as a roost. At the north-west corner of the roof one corrugated sheet has been damaged, leaving a hole where the elements can enter the building, which is likely to increase the temperature variability internally. Gaps are present between the top of the wall plate and the corrugated roof sheeting on both aspects providing

potential roosting opportunities for bats (see Photo 10.), as does a gap between the partition wall and the first rafter at the apex of the skillion roof-frame which runs the full width of the building (see Photo 11.). Inspection of the concrete floor and the wooden tie-beam along the western elevation revealed no bat droppings.

The internal space of the gable-ended component of Barn 10 is smooth-concrete rendered throughout. The thickness of the upper third of the walls are thinner than the lower two-thirds, creating ledges along the full length of 3 aspects (east, west and south-east). Inspection of the render and the tops of these ledges revealed droppings of Lesser White-toothed Shrew (*Crocidura sauveolens*) and numerous bird droppings, but no evidence of bat droppings.



Photo 10.



Photo 11.

There is an alcove below the ledge on the eastern elevation. Inspection internally (with an endoscope) revealed a void between the internal barn wall and the adjacent wooden barn to the north-east. (see Photo 12. and 13.) Wooden batten and noggins are present along the wooden barn, which could provide roosting perches for bats. The roof was exposed revealing all roofing sheets and modern 'A-frame' roof trusses. Most joints comprised of modern butt joints, but some 'lap' joints were present, particularly where the bottom and top chords meet. However, no gaps or crevices between the joints were wide enough to utilise as a roost. No rafters were present at the gable ends of the barn, instead the concrete render runs to the roof. Several crevices are present where the render meets the battens at the wall plate at both the western and eastern elevations, which could provide roosting opportunities for bats. In contrast no gaps were present along the full lengths of the north-west/south-east elevations between the tie-beams and internal wall. Inspection of the bottom chord revealed no bat droppings, but the remnants of 3 Barn Swallow nests were present.



Photo 12. Alcove in eastern elevation



Photo 13. View internally of alcove showing batten/noggins and crevice

It has been shown that all 3 pipistrelle species of bat typically roost within buildings, utilising a very wide variety of features<sup>12 & 18</sup> including, crevices, cracks, holes etc either as individuals up to several hundred at a time. Internally, Barn 10 does provide several roosting opportunities which are considered suitable for transitional or non-breeding summer roosts particularly for Common Pipistrelle as well as Soprano Pipistrelle, particularly due to its proximity to the wetland habitat of Higher Moors SSSI.

Brown Long-eared bats prefer to roost in roof voids which provide flight space within their chosen roost, or roofs that are divided into several smaller compartments. Brown Long-eared bats also typically roost between the joints where the rafters meet the ridge board, or along the ridge board itself<sup>6</sup>. Brown-long eared bat also show high roost fidelity where it would be expected to see concentrations of droppings below the ridge-board, which was not recorded at the time of survey. This in conjunction with the likely day time disturbance will likely limit Barn 10 as a day roost for this species. Leisler's bat is a typical tree dwelling species, particularly during the non-breeding season with roosts typically found in cavities such as mechanical breaks, rot cavities, loose bark and woodpecker holes of large live trees, in open conditions<sup>19</sup>. However, it has been shown that nursery roosts of Leilser's bat show a limited preference for buildings, but only those with lined with roof felt and are constructed of stone, rather than of block and brick<sup>20</sup>. Therefore, the potential use of Barn 10 by Leisler's Bat is very limited.

Barn 10 also provides relatively easy access for all species of bat to enter the interior of the barn. The very open nature internally, with an abundance of perches suggest that the barn is suitable as a night roost, used by bats to take shelter from periods of unfavourable weather.

Barn 10, Carn Friars Farm presents with several features suitable for crevice-dwelling bats typical of the pipistrelle genus, most likely as a transitional or non-breeding day roost. The site is also suitable to all species of bat recorded from the area most likely as a night roost.

# Assessment and recommendations (excluding bats)

#### 4.1 Protected sites

The proposed development falls within the main SSSI Impact Risk Zones of Higher Moors, Lower Moors and Peninnis Head 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 impact in this zone is for residential developments of 10 or more outside of existing settlements and the local authority should consult with Natural England on the risk of discharge of liquid waste to ground, based on the locality of the proposed soakaway.

#### 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 built<sup>21</sup>. During this survey, evidence of nesting birds was found. This evidence included three nests; all situated on the bottom chords of the roof trusses of the open gabled component of the barn. All were constructed with a mix of vegetation, held together with mud suggesting Barn Swallow (*Hirundo rustica*). If demolition or building works are to commence between the months of March and August inclusive, the site would need to be checked first for nesting

birds and if any evidence of breeding activity was found or other nests are identified, works which 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.

Following the proposed renovation works, suitable nesting habitat will be lost from the interior of Barn 10. It is therefore recommended that mitigation measures to replace lost nesting features are incorporated into the design.

Barn Swallows prefer to nest in outbuildings that provide dark ledges and nooks and crannies for nesting. The new plans for Barn 10 include an open fronted timber barn at the eastern elevation. Barn Swallow nest platforms should be fixed to any exposed roof timbers in this area. The platforms should be erected as high as possible and avoid areas which are well lit (see Appendix 1 for example of nest platform)

# 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 and it was possible to survey the whole area of the proposed development.

#### 5.2 Further survey requirements

Barn 10, Carn Friar Farm 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 several features which would provide suitable roosting habitat for small numbers of crevice dwelling bats, most likely to be used as a transitional or a non-breeding summer roost
- The building provides suitable, open internal space and perches to permit all species of bat recorded from the area to use the barn as a night roost
- The building is situated within optimal foraging habitat in a dark, rural setting with extensive links to the wider countryside.

To confirm whether this building supports roosting bats, further surveys (see section 5.3) would need to be undertaken during the bat active season.

#### 5.3 Presence or absence surveys

The Bat Conservation Trust's Bat Survey Guidelines (referred to by Natural England in their advice to planning officers) state that buildings with 'low' bat suitability requires one survey visit comprising of one dusk emergence survey.

The surveys should take place between May – September in optimum weather conditions, to maximise the likelihood of recording bats, with dusk air temperatures exceeding  $10^{\circ}$ C 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 relevant aspects of the building can be viewed at one time. 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.

With due regard to the distribution of potential roosting features; the size and orientation of the buildings; and the scope of potential impacts associated with the proposals, it is identified that **two surveyors** would be required to provide comprehensive visual coverage of the two-storey building.

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 surveys 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 (EPSML), to be considered and issued by Natural England prior to the works commencing.

#### 6. Summary

Barn 10, Carn Friar Farm was found to have **low potential** to support transitional or a non-breeding summer roost for cavity dwelling species such as Common and/or Soprano Pipistrelle and is considered suitable as a night roost for all species of bat recorded from the area.

To assess whether bats roost in the building one further survey is recommended in the form of one dusk emergence to be carried out between May and September. The survey requires two surveyors to be strategically positioned to observe all potential roosting features which may be affected by the proposals. If bats are found to be roosting in the barn, then further surveys may be required to fully characterise the roost and inform a mitigation strategy which would need to be implemented.

Breeding birds were confirmed nesting on the lower chords of the roof trusses at the time of the survey, gaining access from the open stable door, or from the missing panes of glass from the windows. Recommendations are provided relating to the timing of works and pre-commencement nesting bird checks, as well as mitigation measures to secure continuity of nesting habitat in the long term.

Aside from bats and nesting birds, no other ecological receptors are identified which require consideration to inform the determination of this planning application.

# 7. Bibliography

- 1. Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> 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. Watts-Davidson, I. & Jones, G. (2005). Differences *in foraging behavior between Pipistrellus and Pipistrellus pygmaeus.* Journal of Zoology 268. P. 55-62
- 6. 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
- 7. 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
- 8. Swift, S.M. (2010). Long-Eared Bats. T & AD Poyser. A&C Black Publishers Ltd, London.
- 9. 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
- 10. 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
- 11. Berge, L. (2007). Resource *partitioning between the cryptic species Brandt's bat (Myotis brandtii) and the Whiskered Bat (M. mystacinus) in the UK*. University of Bristol. School of Biological Sciences
- 12. Buckley, D.J. et al. (2012). The *spatial ecology of the whiskered bat (Myotis mystacinus) at the western extreme of its range provides evidence of regional adaptation.* Mammalian Biology Vol 78. Issue 3: p198-204
- 13. Downs N, Racey PA (2006). *The use by bats of habitat features in mixed farmland in Scotland*. Acta Chiropterologica, vol 8:169-185
- 14. 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

- 15. Hough, T. (2015). Coastal habitat use by bat species. BSG Ecology
- 16. Stone, E.L., Jones, G. & Harris, S. (2009). *Street Lighting Disturbs Commuting Bats.* Current Biology 19. P1123-1127
- 17. Blake, D. et al. (1994). Use of lamp-lit roads by foraging bats in southern England. Journal of Zoology 234. P 453-462.
- 18. Jenkins, E.V. et al. (1997). *Roost selection in the pipistrelle bat, Pipistrellus (Chiroptera: Vespertilonidae), in northeast Scotland.* Animal Behaviour 56. P909-917
- 19. Spada, M. et al. (2008). *Roost selection by non-breeding Leisler bats (Nyctalus leisleri) in montane woodlands: implications for habitat management.* Acta Chiropterologica 10 (1). P81-88
- 20. Lundy, M.G. et al. (2011). *Ladndscape conservation for Irish bats and species-specific roosting characteristics.* Bat Conservation Ireland
- 21. H.M.S.O. (1981). The Wildlife and Countryside Act 1981 (as amended). London.

# **Appendix 1**



Supplier of Barn Swallow nest platforms (see link below) <u>https://www.nhbs.com/eco-swallow-nest?bkfno=241644&ca\_id=1495&gclid=EAIaIQobChMI-</u> <u>ZW5t4KR7QIVWbvVCh1bmQgxEAQYBCABEgIwuPD\_BwE</u>

For information on encouraging nesting Barn Swallows please follow link below: <u>https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/swallow/attracting-swallows-to-nest/</u>