

BAT EMERGENCE / RE-ENTRY SURVEY

Costells, Scaynes Hill, West Sussex

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Garden and Estate Management - Habitat Management - Ecology Surveys

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1. Executive summary

This report has been prepared by Sophie Bailey on behalf of Deakin Oak. It provides the results of Bat Emergence/ Re-entry Surveys conducted at Costells, Scaynes Hill on 30th July 2025 (emergence) and 31st July 2025 (dawn re-entry) to assess bat activity and potential roost usage.

The bat surveys are to inform a planning application for redevelopment of the site by identifying any bat species present, their activity patterns and any potential roosting locations.

Prior to the emergence/re-entry survey being carried out, a preliminary ecological appraisal of the proposed development site was undertaken during daylight hours to observe, assess and record any habitat suitable for bats to roost, commute and forage, both on site as well as the surrounding habitat, including connectivity within the landscape.

A systematic search was carried out of the two structures for evidence of bat presence, including droppings, urine streaking, oil staining and foraging evidence. During the ecological appraisal, none of these visual clues were seen and the interior of the stables roof was heavily covered in cobwebs with no recent disturbance evident.

Despite the lack of visual evidence, a number of potential exit/entry points were identified in cracks and holes in soffit overhangs and gaps between the fascia boarding, especially on the gable apex. Also due to the age and nature of the structure, suitable roosting locations may still be present in timber joints, wall cavities and gaps under the sheet roofing and therefore it is not possible to rule out the presence of bats within the buildings solely based on the ecological appraisal.

The emergence/re-entry surveys were carried out during the peak activity season for bats (April - September) ensuring they were conducted during favourable weather conditions and carried out in accordance with best practice guidelines (Bat Conservation Trust, 2015, 3rd edition)

During the surveys seven different bat species were recorded from 3 separate points; the area in front of the buildings, the nearby driveway and the woodland edge. The species recorded were:

- Common Pipistrelle *Pipistrellus pipistrellus*
- Soprano Pipistrelle *Pipistrellus pygmaeus*
- Serotine *Eptesicus serotinus*
- Grey long-eared Bat *Plecotus austriacus*,
- Noctule *Nyctalus noctula*
- And two *Myotis* species, Daubenton's Bat *Myotis daubentonii* and Natterer's Bat *Myotis nattereri*

(NB. the call parameters for some of the *Myotis* bat species overlap and therefore, it is not always possible to differentiate some *Myotis* species even with good quality recordings.

Identification of these bat species were confirmed using an Eco Meter Touch 2 bat detector on RTE mode (Real Time Expansion) with sound analysis software recording the data. Alongside this, a manual Magenta 5 heterodyne bat detector was used, with the surveyors own knowledge to cross reference the more common species detected on the Eco Meter Touch 2.

Visual sightings and species flight characteristics backed up the echolocation sounds to confirm bats were present in the area with the surrounding woodland and hedgerows certainly being used as a foraging/commuting route, however, no visible confirmation that bats exited or entered the building was ascertained during the emergence/re-entry survey.

Of the 6 species recorded, 4 are classified as 'Common and Widespread' within Sussex and are listed as 'Least concern' in Great Britain on the IUCN classification list (International Union for Conservation of Nature). These 4 also have foraging/roosting preferences that tie in with the types of habitats within the Costells estate and therefore, it was unsurprising to find them recorded during the survey.

The other 2 species are more unique, with the Serotine listed as 'Vulnerable' and the Grey Long-eared Bat as 'Endangered'. The latter has an estimated population of only 1,000 individuals and a restricted distribution solely to southern England, with Sussex being one of the counties where a few colonies are recorded. Due to their comparatively good eyesight and hearing Long-eared Bats often will not echolocate, meaning their calls are rarely captured on bat detectors and because of this, they are often under-recorded.

All bats and their roosts are protected by law under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. These laws make it an offence to disturb bats indirectly through increases in noise, vibration, human contact or light pollution or directly damage/destroy their roosts, therefore, planning proposals must include avoidance and mitigation plans. However, with the recording of a Grey Long-eared Bat in the area and the Serotine recorded at the rear of the buildings/at the woodlands edge (this species will very rarely roost in trees). Additional, more detailed surveys will need to be undertaken to rule out the buildings as a roosting site and establish if the bats were commuting through and/or foraging in the area. It also needs to be noted that the drive is also a public footpath and therefore any highlighting or public records of a possible Grey long-eared Bat colony in the area may increase unwanted and invasive footfall.

2. Survey Objectives

The overall aim of the bat survey was to identify and evaluate the ecological value of the two structures associated with the proposed development of the site, with regards to roosting bats and provide, if required, recommendations for further survey and mitigation to satisfy legal and planning policy requirements where appropriate.

The objectives of the ecological appraisal survey were to:

- Evaluate the value of the structure for bats and potential roost features (PRFs)
- Ascertain presence or likely absence of bat roosts within the building through visual evidence
- Assess and record potential exit/entry points for focus during the emergence/re-entry survey

The objectives of the emergence/re-entry surveys were to:

- Ascertain presence of bats within the site and surrounding area
- Ascertain usage of the building structure for bat roosts
- If within the site/area, which bat species are present

3. Desk survey

Costells is a 45 acre estate consisting of areas of ancient semi-natural woodland, a large paddock, wildflower meadows and formal gardens surrounding the property. To the south west of the estate is Costells Wood, a site of Ancient Semi-natural Woodland (ASNW) managed by the Woodland Trust, which has been designated a county SNCI (Site of Nature Conservation Importance) due to a long history of continuous woodland cover which is of considerable importance for wildlife.

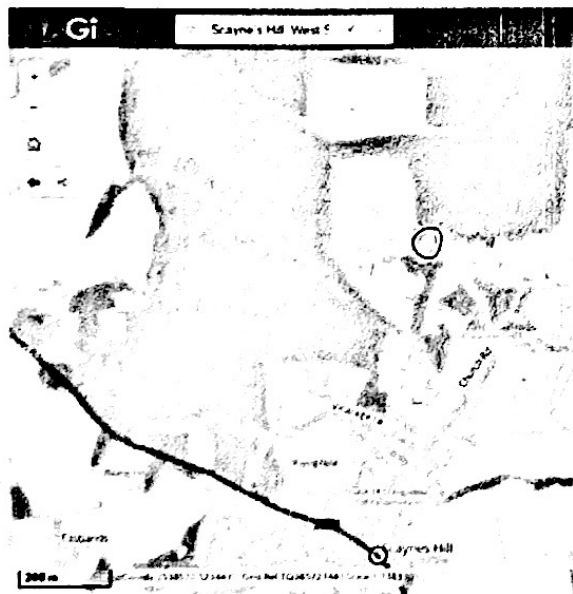


Fig 1. Scayne's Hill area and location of proposed development (Magic maps)

The proposed development site is a stable block situated just off the main drive of the estate, highlighted in Fig.1 by the red circle. As the map shows, it sits within a woodland clearing which is within an area of high woodland connectivity with the surrounding area.

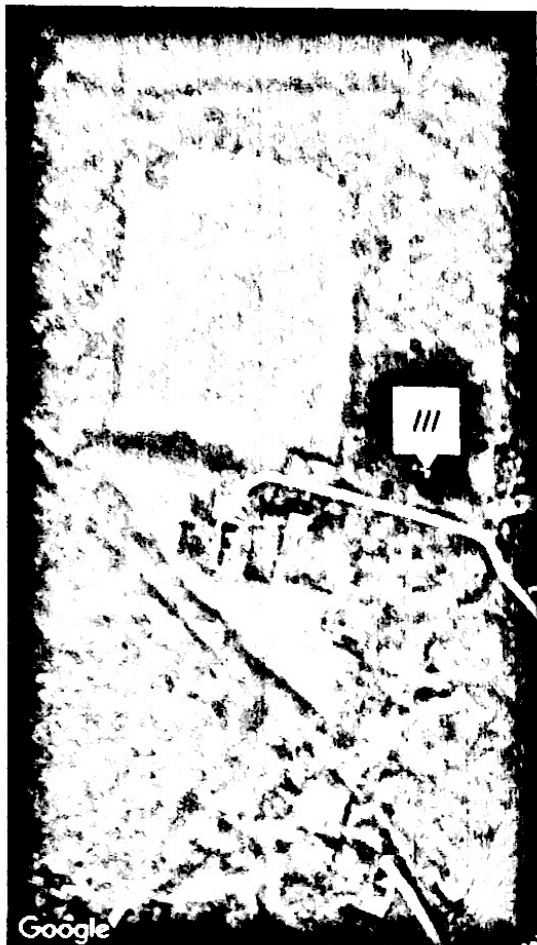


Fig 2. Costells estate and location of stables (Google)

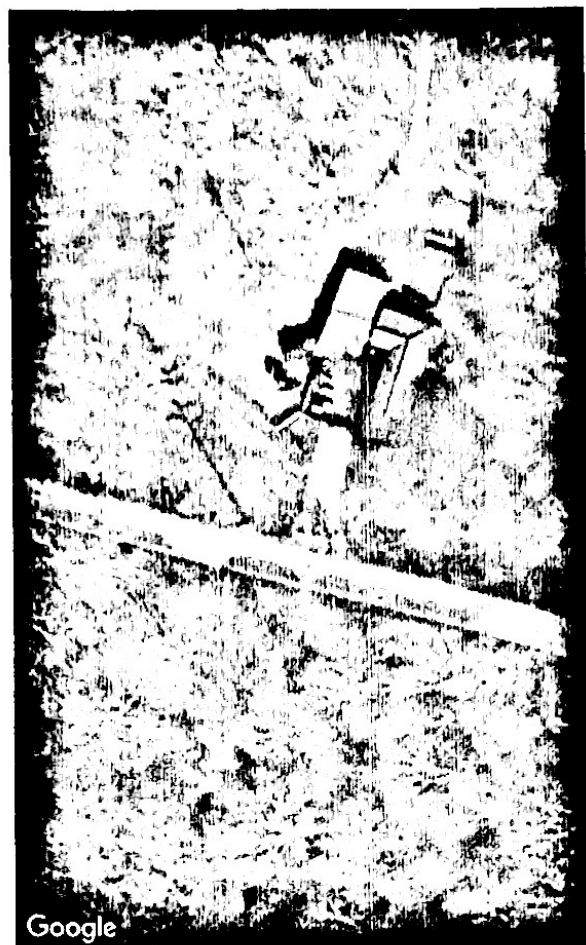


Fig 3. Overhead of proposed development site (Google)

Fig.2 details the location of the buildings within the woodland clearing and the mix of habitats across the estate/adjacent land, especially the areas of open space just to the west.

Fig 3 showing the short driveway and hard-standing courtyard in front of the two buildings. A large compost area sits to the north of the building, with trees and thicket vegetation directly to the east.

All 3 images illustrate the good habitat connectivity of the estate with the surrounding area; a mosaic of woodland/tree cover, linear hedgerows and open areas of pasture and wildflower meadows.

4. Site survey

The main drive runs SE/NW and is lined by a 6-7ft predominately holly hedge to the south (Fig 3)
To the north of the drive, there are open grass areas with 2 standard oak trees, with this area edged by a 5 ft beech hedge, west of the stables (Fig 4), and a mixed hedgerow (cherry, laurel, silver birch, holly and bramble) to the east (Fig 5)



Fig 4. Main driveway looking ESE, showing holly hedge, open grass area and standard oak



Fig 5. Beech hedge to west of stables



Fig 6. Mixed hedgerow to east of stables

The structures

The proposed development site consists of two detached farm/outhouse buildings, situated within a small woodland clearing, just off the main drive. These buildings have, up until recently (June/July 2025), been used to stable a few horses with time spent in the nearby paddock/meadow.

4.1 The Hay barn:



Fig 7 Front (south) elevation and access gates



Fig 8 Interior of barn showing 2 compartments

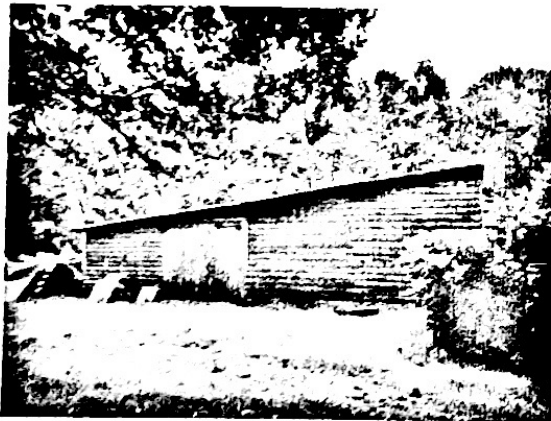


Fig 9 Side (west) elevation

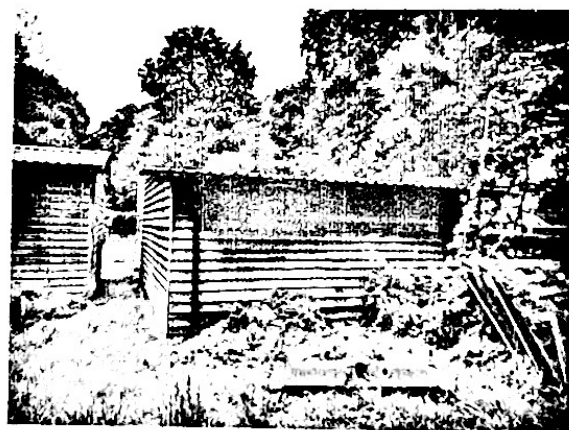


Fig 10 Rear (north) and side (east) elevation

The Haybarn - a semi open timber framed structure. Vertical support posts consist of tree trunks and timber, with weathered slatted wood planks forming the side walls to the front half of the structure (Fig 7) Shiplap timber walls to the rear with locked storage area accessed by double timber doors on the west elevation (Fig 9/10) A sloping corrugated metal sheet roof covers the full structure.

4.2 Stable block:



Fig 11 Front (south and west) elevations

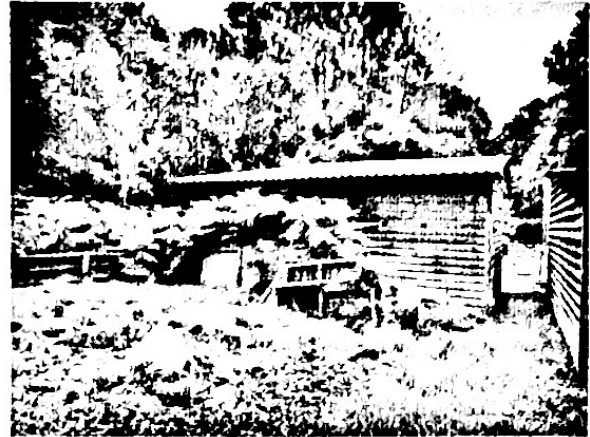


Fig 12. Rear and side (north and east) elevations

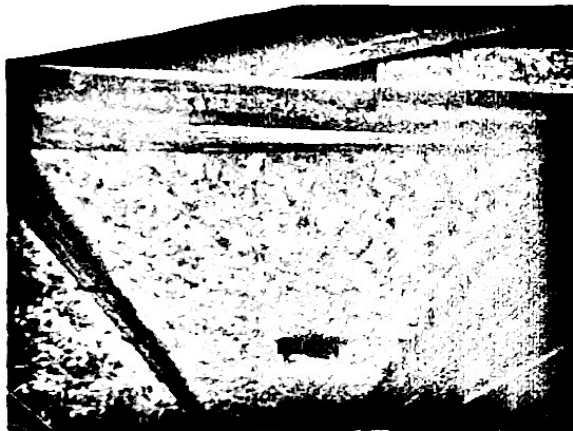


Fig 13 Soffit overhang and guttering

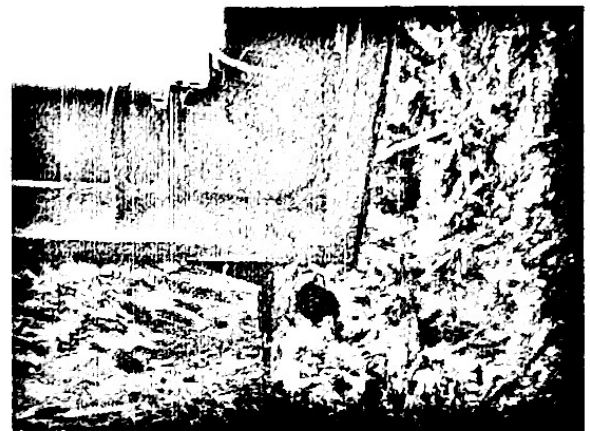


Fig 14 Holes/gaps in soffit



Fig 15 Gable apex gaps



Fig 16 Gaps between soffit and roof frame

Stable block - timber post and beam construction with weathered horizontal shiplap timber cladding external walls. 5 x solid timber traditional stable style doors and 3 small windows (Fig 11)

Pitched, corrugated metal roof with chipboard soffit overhang. Guttering along fascia edge.

Interiors are lined by half height chipboard panels and are divided by temporary construction chipboard walls with timber roof beams and roofing felt.

Directly behind (north) the stable block there is a large compost area (partly seen in Fig 12) with 4 bays. The first bay, nearest to the building, was used to compost used hay, which would include horse dung. This along with the other bays of decaying plant matter, would attract a higher percentage of insects to the area.

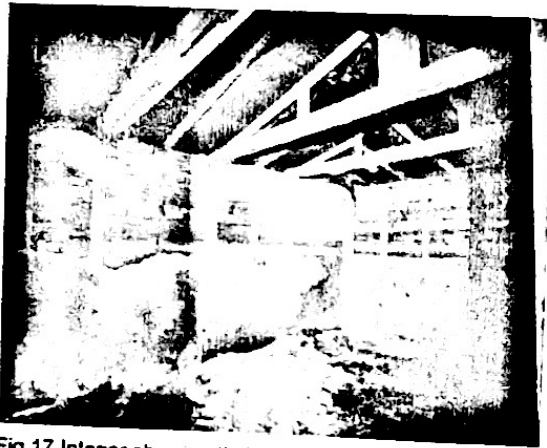


Fig 17 Interior showing timber wall and roof frame and half height wall panels

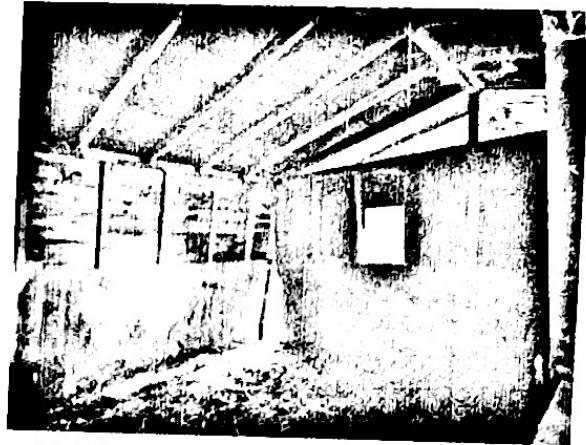


Fig 18 Interior showing partition wall



Fig 17 Interior showing timber roof frame

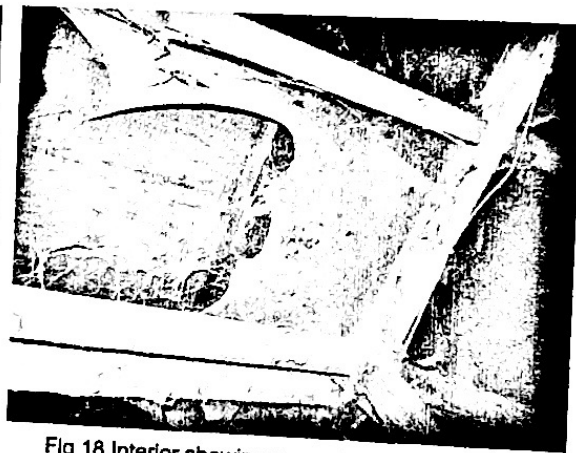


Fig 18 Interior showing excessive webs

5. Methodology

The bat emergence and activity surveys were undertaken in accordance with best practice guidance (Collins, 2016) to establish probable presence/absence of a building deemed to have moderate potential for roosting bats.

The surveys were carried out as follows:

30/07/2025 dusk emergence survey and 31/07/2025 dawn re-entry survey

Emergence surveys were carried out from 20 minutes before sunset until 90 minutes after.

Re-entry surveys were carried out from 90 minutes before sunrise until 15 minutes after.

Preferred weather conditions:

A temperature of above 10 degrees celsius at dusk and 7 degrees celsius at dawn, with light winds and minimal to no rainfall.

30/07/2025 - At 8:00pm, 23 degrees, light breeze, some cloud, day had been warm and dry.

Also to note: flying insects, dragonflies, midges present and active in the air.

31/07/2025 - At 4:30am, 17 degrees, calm, clear sky.

Also to note: flying insects, midges and moths present and active in the air.

The surveyor was situated just in front of the access gates to the site for the majority of the recordings (What3Words: drums.join.landed), enabling clear visibility of the buildings where potential access points had been identified and limited tree cover, maximising the light of the sky behind.

Recordings were also taken from the end of the short drive to the stables/main drive (What3Words: safe.giving.libraries) as well as behind the buildings/on the woodland edge (What3Words: fool.drove.milky). Each different recording location, timing and visual sighting/direction of flight was noted.

Equipment Used:

- Echo Meter Touch 2 (full-spectrum bat detector) with data recording function
- Magenta Bat 5 (manual heterodyne detector)
- Binoculars (in daylight) to identify external exit/entry points
- Infrared camera to look for any heat pockets and movement near the identified exit/entry points

6. Constraints and Limitations

Although the surveyor was able to access the areas around the buildings, no external access or assessment of the east side of the stable block was possible due to high hedgerow/vegetation.

The location of the surveyor for the majority of the recordings enabled visibility of 2 sides of both of the buildings, with the focus on the potential exit/entry points identified in the ecological appraisal. However, the valley section of the stables roof, nor the rear elevations and sloping roof of the hay barn were not visible. Even though a few potential exit/entry gaps in these areas had been identified, the high amount of undisturbed cobwebs in these locations indicated that they had not been used recently.

Light pollution was problematic once the daylight had gone, with spotlights lining the driveway and pointing directly at the stable block, hindering visibility. Once the spotlights had come on, no further visual records were noted, with the Echo Meter Touch 2 being the sole method of recording and numbers of echolocation sounds declining.

7. Results



Fig 19. GPS view of all echolocation hits recorded by the Echo Meter Touch 2

7.1 Species Information:

Species	Total number of echolocation hits	Conservation status	IUCN classification	Roosting preference	Foraging preference	Any other info
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	54	Widespread and common	Least concern	Buildings (often new), trees and bat boxes	Woodland, hedgerows, grassland, suburban and urban	Visually identified in flight - moving to/from Bog garden area
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	2	Widespread and common	Least concern	Trees, buildings (often new) and bat boxes	Woodland edge, treelines, hedgerows, wetland habitats, suburban	
Serotine <i>Eptesicus serotinus</i>	2	Widespread and fairly common	Vulnerable	Buildings (often old) very rarely found in trees	Open areas, woodland edges, parkland, pasture, treelines	Key food sources: dung beetles, chaffers
Grey long-eared Bat <i>Plecotus austriacus</i>	1	Rare. Restricted to a few colonies in counties along the south coast	Endangered	Trees and buildings (often old)	Open spaces such as meadows, gardens and near woodland edges	
Nocule <i>Nyctalus noctula</i>	8	Widespread and fairly common	Least concern	Tree dwellers, rarely in buildings	Open countryside, wood pasture, large waterbodies, broadleaf woodlands	A 'Woodland Specialist' bat species
Myotis sp. Daubenton's Bat <i>Myotis daubentonii</i>	1	Widespread and common	Least concern	Trees, bridges, stone buildings, tunnels	Wetlands, large waterbodies	* most likely an error - more likely to be a Natterer's bat echolocation
Myotis sp. Natterer's Bat <i>Myotis nattereri</i>	8	Widespread and fairly common	Least concern	Trees, timber framed barns, stone buildings	Broadleaf woodlands, hedgerows	A 'Woodland Specialist' bat species

Information taken from Wild ID British Bats (Mammal Society 2022) and BCT online resources

7.2 Species Overview

A total of 7 bat species were recorded during the dusk and dawn surveys.

- Common Pipistrelle *Pipistrellus pipistrellus*
- Soprano Pipistrelle *Pipistrellus pygmaeus*
- Serotine *Eptesicus serotinus*
- Grey long-eared Bat *Plecotus austriacus*,
- Noctule *Nyctalus noctula*
- And two *Myotis* species, Daubenton's Bat *Myotis daubentonii* and Natterer's Bat *Myotis nattereri*

As expected due to the habitat, location and their widespread distribution, Common Pipistrelles were the highest recorded bat species (recorded an echolocation 'hit' a total of 54 times). Common Pipistrelles are considered to be widespread and common, with an estimated UK population of 2.4 million (Bat Conservation Trust 2010), however, populations have declined in the last few decades due to their reliance on buildings for roosting and changes in building renovations that exclude them from gaining access, along with an increase in toxic remedial timber treatment chemicals.

They thrive in a wide mix of habitats and can be seen flying fast and jerkily a few meters above the ground, catching midges and moths, often following linear hedgerows

With 8 echolocation sounds each, Noctules and Natterer's Bats were the next highest recorded. Both of these bat species are referred to as 'Woodland specialists' - they have a strong preference for roosting in trees and foraging in woodland/woodland edges- so no surprise to see their echolocation recordings near to the buildings and on the woodland edge behind. Of the 2, the Natterer's bat (*Myotis* species) has the higher potential of roosting in the buildings, with a preference for timber framed barns.

As mentioned in the Executive Summary, *Myotis* species are sometimes difficult to differentiate due to their echolocation call parameters overlapping and therefore, it is likely the 1 recording of a Daubenton's bat is incorrect and it is another echolocation hit of a Natterer's bat. Daubenton's bats are often referred to as the 'water bat', preferring wetlands and large waterbodies/rivers habitats, where they scoop insects off the surface of the water.

The Serotine was recorded in front of the building and is a species that rarely roosts in trees, preferring older buildings. With dung beetles and chaffers as their key food sources, they often forage in pastures (especially where livestock are located and manure is found) as well as meadows. Both beetles and chaffers have been in abundance at Costells this summer.

Serotines are also often recorded near lit buildings and streetlights, where they use the light that's attracting the moths to their advantage for a quick meal.

As previously mentioned, they are listed as Vulnerable, with their historical decline in population numbers due to the loss of feeding habitats where large insects can be found as well as the toxic chemicals now used in remedial timber treatment in construction and development.

The Grey Long-eared Bat echolocation hit was recorded on the drive at 9:55pm. They will only emerge in the dark, usually between 45-70 minutes after sunset. With the recording being 65 minutes after sunset, it could potentially place a roost site within a close radius. They like to forage for crane fly, moths and small beetles over meadows, grasslands and gardens and will travel up to 6km away from the roost. Declines in this species are down to changes in foraging habitat, particularly the loss of species-rich meadows.

NB. Grey Long-eared Bats have been in the news recently (July 2025) due to evidence that one was identified in Kent, where the species has not been recorded in the last 40 years.

<https://www.bats.org.uk/news/2025/07/rare-bat-species-found-in-kent>

7.3 Dusk Emergence Survey Results 30.7.2025

Time period	Recording location	Species recorded	Number of times recorded
21:08 - 21:35	In front of building	Common Pipistrelle	26
21:08 - 21:35	In front of building	Soprano Pipistrelle	2
21:08 - 21:35	In front of building	Serotine	2
21:54 - 22:05	On driveway	Common Pipistrelle	11
21:54 - 22:05	On driveway	Grey long-eared Bat	1
22:11 - 22:18	In front of building	Common Pipistrelle	9

Data recorded on the Echo Meter Touch 2 during survey

7.4 Dawn Re-entry Survey Results 31.7.2025

Time period	Recording location	Species recorded	Number of times recorded
04:20 - 04:39	In front of building	Common Pipistrelle	4
04:20 - 04:39	In front of building	MYOTIS sp. Daubenton's Bat	1
04:43 - 04:49	In front of building	Common Pipistrelle	3
04:43 - 04:49	In front of building	MYOTIS sp. Natterer's Bat	3
04:50 - 04:55	On driveway	NOTHING RECORDED	
04:57 - 05:02	Back of building/woodland edge	MYOTIS sp. Natterer's Bat	4
04:57 - 05:02	Back of building/woodland edge	Common Pipistrelle	1
04:57 - 05:02	Back of building/woodland edge	Noctule	1
05:07 - 05:12	In front of building	MYOTIS sp. Natterer's Bat	1
05:17 - 05:25	In front of building	Noctule	7
05:32 - 05:45	In front of building	NOTHING RECORDED	

Data recorded on the Echo Meter Touch 2 during survey

8. Points to consider

Given all the echolocation data and the different bat species recorded during the surveys, it is conclusive that a variety of bats are using the habitat surrounding the proposed development site. At this time, there is insufficient data to verify or rule out that bats are using the buildings as a roost site. However, the ecological appraisal completed did identify the presence of suitable access points and potential opportunistic roosting habitat within the structures present on site, for some of the bat species recorded.

To move forward with a future planning proposal, additional bat surveys are required. An Extended Phase 1 Habitat Survey is also recommended to assess current habitat value and to formulate a plan to create/enhance areas in line with the mandatory 10% increase in Biodiversity Net Gain (BNG). All development projects since April 2024, are subject to the BNG requirement under the Environment Act 2021, meaning that any site development that takes place has to 'result in more or better quality natural habitat than there was before development'.

(www.gov.uk/guidance/understanding-biodiversity-net-gain)

All species of UK bats are legally protected as they are an indicator species (changes in their populations alert us to changes in wider environmental changes) as well as playing a key role in balancing our ecosystems. All 17 species of UK bat use buildings to a lesser or greater degree, however, with advances in technology and changes in construction, our homes are now more energy efficient and therefore, more airtight, eliminating access to safe roosting/hibernating spaces, such as roof voids. Along with including bat access products within the design of the new construction, the current thinking is of a broader approach in planning. One that encompasses habitat enhancement, especially for areas that may have a direct impact on the bat species recorded. This could also help with mitigation planning.

Areas of value to consider would be:

Woodland area directly surrounding the site:

As shown on the data recordings, this area is obviously being used as a commuting route/foraging area for the majority of the bat species and therefore it is imperative that this habitat is managed with bat requirements in mind. Sympathetic management of the trees currently in the area, ensuring all deadwood is kept in situ (both fallen and standing). Deadwood is the building blocks for all food chains, increasing insects which are the main food sources for bats. Standing deadwood also provides essential natural roosting opportunities in tree crevices and woodpecker holes (woodpeckers are regularly heard/seen in the woodland) This area also naturally has a higher biodiversity of insects present due to the compost area.

Bog garden:

Due to the bat commuting routes seen during the survey, the woodland area directly south of the main drive is also an essential bat foraging/commuting habitat, with plenty of older trees as well as having a high value in connectivity with the wider area. The bog garden, that sits directly behind the holly hedgerow, by its nature is a hive of microhabitats that supports a higher insect diversity. For these reasons, the enhancement of the bog garden could be included within both a BNG proposal as well as a mitigation plan.

Meadow/Paddock:

With the large meadow adjacent to the woodland site, it is most likely the Serotine, Grey Long-eared Bat and the Noctule use this open pasture space for their foraging requirements, moving to/from woodland areas. With both the Serotine and the Grey Long-eared Bat being the rarer species recorded it is essential the meadow/paddock area is carefully managed, especially now the horses are no longer using the field and keeping the more dominant flora species, such as thistles and docks, under control.

Management of the paddock/meadow would include ensuring field margins are maintained following the latest DEFRA requirements, with species-rich flora and cutting regimes followed.

As with other habitat enhancement, the management of the meadow/paddock ensuring a wildlife focus could also be included within a BNG proposal for the proposed site redevelopment.

Hedgerows:

Species-rich hedgerows are extremely important habitats for bats, providing a diverse food source, shelter from predators/ foraging opportunities during sub-optimal weather conditions as well as being valuable landmarks for their orientation. The commuting/foraging flight patterns seen during the survey, highlighted the regular use of these linear corridors.

Hedgerows in the UK have suffered a significant decline since World War 2, with agricultural intensification, poor management and urban growth being the main causes, impacting a habitat that if managed correctly, can support the highest biodiversity. Due to this, creating new species-rich hedgerows and ensuring existing hedgerows are managed with wildlife in mind would be a key point in a BNG proposal as well as a mitigation plan.

Bat boxes:

Advice on mitigation for developments where bats are present, suggest fitting a number of woodcrete bat boxes on trees in the surrounding area along with ensuring the building design incorporates a number of roosting opportunities, by using bat access products.

Bat boxes come in a number of designs, depending on bat species and whether they are needed for roosting or maternity requirements.

The Ridge Roosts sit within the ridgeline or apex of the roof, allowing access into an area of the roof void and Bat Access Tiles can easily be incorporated into the construction.

Adding integrated bat roost structures into the proposed development plans will also help with mitigation.



The **Manthorpe Ridge Roost** was developed through the Roost Partnership, this innovative solution effortlessly integrates bat roosting habitat for small numbers of crevice dwelling species in the self-contained design, which is easy to install on any ridge end during new build or renovation projects.



The **Just Lead Bat Access Tile** design was refined through working with the Roost Partnership because "Giving the bats access points at roof level creating a safe haven for them to reside means everything to us and gives us a piece of mind knowing we are doing something to help the bats."

Fig 20 Examples of Bat Access solutions BCT and industry recommended

9. References

- Bat Conservation Trust, Bat Surveys for Professional Ecologists - Best Practice Guide, 3rd Edition
- Bat Conservation Trust website, www.bats.org.uk
- Bat Conservation Trust, Bat News Magazine, Summer 2025 (Roost Partnership article)
- Dietz & Keifer, Bats of Britain and Europe 2016
- Mammal Society/Field Studies Council, Wild ID British Bats, 4th Edition, 2022