the ecology partnership

Bat Emergence Surveys - *Interim Report*

Land south of Chiswell Green Lane, St Albans, Hertfordshire

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Contents

LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

1.1 The Ecology Partnership was commissioned by Alban Developments Limited and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd to undertake a preliminary roost assessment and any subsequent bat emergence surveys of the buildings at land South of Chiswell Green Lane, St Albans, Hertfordshire.

1.2 This interim report presents the findings of the preliminary roost assessment and first survey dusk emergence survey only of buildings B1, B2, B3, B4, B5 and B6. Additional bat surveys will be required once the bat survey season begins again in May – August 2022, to complete the full suite of bat surveys required for these buildings. After which a full bat survey report will follow.

1.3 Section 2 of this report sets out the methodology of The Ecology Partnership's survey and the results in Section 3 and the implications discussed in Section 4. Conclusions are provided for in chapter 5 of this report.

Site Context and Status

1.4 The site comprises four distinct areas of fields separated by mature treelines, with a collection of farm buildings in the north-eastern and north-western corners. Fields in the north of the site are intensively grazed by horses, whilst those in the south are currently unmanaged rank grassland. The site is located to the south-west of Chiswell Green, in the St Albans District of Hertfordshire (TL131042). The site is approximately 14.02ha in size, and is bound by Chiswell Green Lane to the north, residential gardens and a small block of woodland to the east and south-east, and, Miriam Lane and Butterfly World to the west. The wider surrounding area comprises residential areas to the east and, agricultural land to the west.

1.5 The extent of the site is indicated in Figure 1.

Figure 1: Approximate extent of the red line boundary
Satellite imagery obtained from Google Earth Pro on 09/09/2021

Description of Proposed Development

1.6 The demolition of existing structures and construction of up to 391 dwellings (Use Class C3), the provision of land for a new 2FE Primary School, open space provision and associated landscaping and new access arrangements.

Legislation

1.7 All bats are covered by the following relevant legislation: the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2010).

1.8 Under the WCA 1981 it is an offence to:

- intentionally, recklessly or deliberately disturb a roosting or hibernating bat i.e. disturbing it whilst it is occupying a structure or place used for shelter or protection)
- intentionally or recklessly obstruct access to a roost (i.e. a structure or place used for shelter or protection).

1.9 Under the CHSR 2010 it is an offence to:

- deliberately capture (or take), injure or kill a bat
- intentionally, recklessly or deliberately disturb a bat, in particular (i) any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young; (ii) any disturbance which is likely to impair their ability in the case of hibernating or migratory species, to hibernate or migrate; or (iii) any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong
- damage or destroy a breeding site or resting place (roost) of a bat.

2.0 Methodology

Site Inspection

2.1 Senior Ecologists Matt Pendry BSc (Hons) and Eddie Selwyn BSc (Hons) MSc undertook an internal and external building assessment for bat species on 15th September 2021. The assessment followed current Bat Conservation Trust guidelines (BCT, 2016). Subsequent surveys were conducted on the basis of the initial survey assessment.

Building Survey for Bat Species

2.2 Buildings which are considered to have a higher potential to support roosting bats would include the following:

- Agricultural buildings (e.g. farmhouses, barns and out buildings) of traditional brick or stone construction and/or with exposed beams;
- Buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water;
- Pre 1960s detached buildings and structures within 200m of woodland and/or water;

- Pre 1914 buildings within 400m of woodland and/or water;
- Pre 1914 buildings with gable ends or slate roofs regardless of location;
- Buildings which are located within or immediately adjacent to woodland and/or immediately adjacent to water;
- Dutch barns or livestock buildings with a single skin roof and board and gap or Yorkshire boarding if, following a preliminary roost assessment the site appear to be particularly suited to bats.

2.3 Roosts of bats in trees and buildings may be identified from the following field signs:

- Black stains beneath cracks, splits and other features where bat dropping have fallen;
- Dark marks at entrance points where bats have rubbed against the wood and left natural body oils;
- Feeding remains beneath roosts, such as insect wings;
- Chattering of bats;
- Bat droppings under access points;
- Scratch marks around a feature (cavity or split) caused by bat claws;
- Urine stains below the entrance or end of split;
- Large roosts or regularly used sites may produce an odour;
- Flies around the entrance, attracted by the smell of guano.

Table 1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement. Table 4.1 within the 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed), 2016'.

Suitability	Description Roosting Habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter,	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to

	protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRF*s but with none seen from ground level or features seen with only very limited roosting potential.	the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, stream, hedgerows, lines of trees and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

*Potential roost features

Bat Emergence Surveys and Re-Entry Surveys

2.4 One emergence survey was undertaken on five buildings on site over two separate nights. During the surveys, all activity including any emergence from the buildings were recorded. The surveys followed BCT guidelines (2016). The dusk surveys started 15 minutes before sunset and observations were maintained until between 1.5-2 hours after sunset. Bat species usually emerge about twenty minutes after sunset depending on the species, light level, weather conditions and time of year. Peak activity will normally last for approximately two hours after sunset, during times of peak insect activity. Surveyors were positioned to cover areas of interest and to record any activity around the buildings (Figure 3).

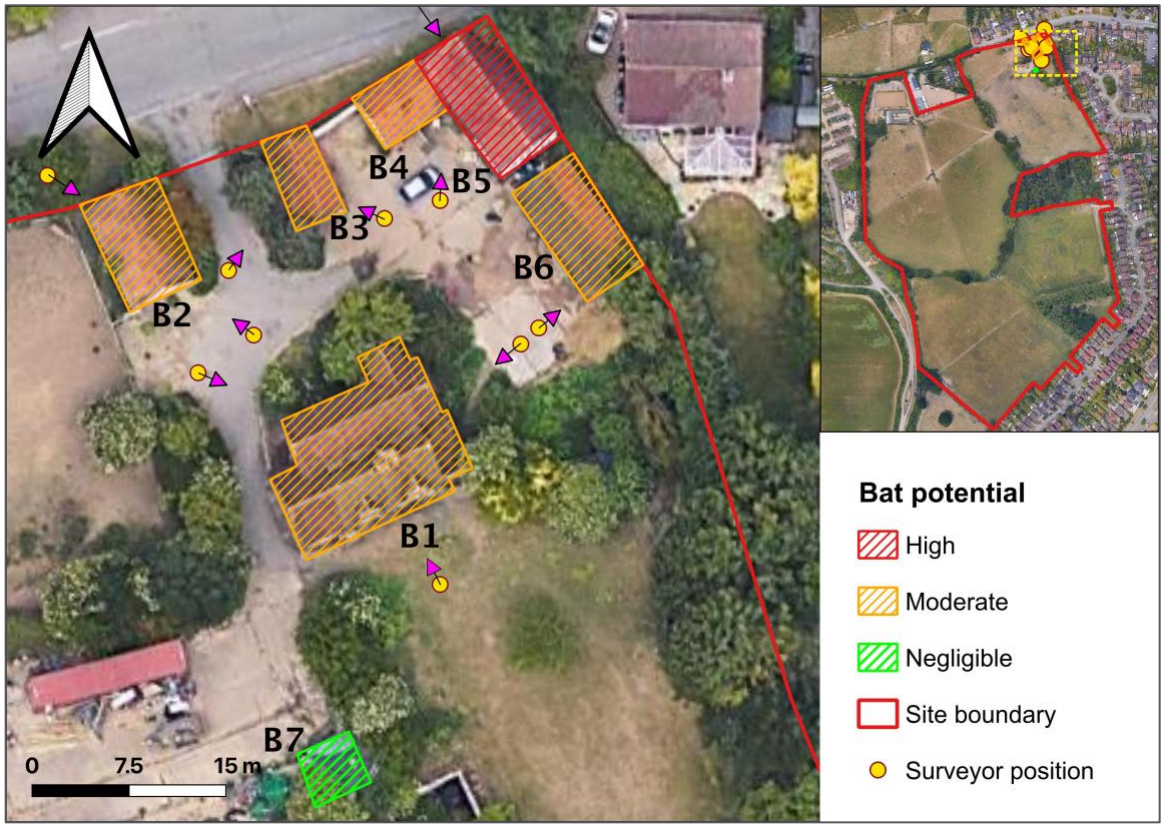

Figure 3: Building and surveyor locations on site

2.5 The survey was undertaken by Matthew Pendry BSc (Hons), Eddie Selwyn BSc (Hons) MSc, Charlie Chandler BSc (Hons) MSc QCIEEM, Richard Law BSc MRes CEnv MCIEEM, Digby Hayden BSc (Hons), and Greg Holland. All surveyors were equipped with either an

Echo Meter Touch and/or Elekon Batloggers. Additionally, two infra-red (IR) cameras with IR lamps were used to assist with coverage of the buildings.

Limitations

2.6 It should be noted that while every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment.

2.7 Dense foliage obscured some aspects of the buildings, as such, information between surveyors was cross-referenced and a precautionary approach taken when a possible emergence could have occurred from an obscured feature. However, most features on the buildings could be directly observed.

2.8 The surveys were conducted in September, which, whilst still in the active survey season, is a sub-optimal time of year for recording maternity roosts. As such, all remaining recommended surveys will be undertaken the following year in the active maternity season for bats (May-August).

3.0 Results

Desk Study

3.1 There are not any current or past European Protected Species Mitigation EPSM Licences for bat species associated with the buildings on site. However, there are two historic EPSM licences for bat species within a 2km radius around the site:

- 415m east, 2014, historic licence for destruction of a resting place for common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*P.pygmaeus*);
- 800m south-east, 2010-2012, historic licence for destruction of breeding site and resting place for common pipistrelle.

3.2 A 2km records search was requested from Hertfordshire Environmental Records Centre. The records closest to site, recorded within the last 10 years and relevant to the habitats on site have been included in Table 1 below:

Table 1. Bats recorded within 2km of the site in the last 10 years.

Species	Status	Distance (closest)	Date (closest)
Daubenton's bat - *Myotis daubentonii* (3 records)	Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 5	1.85km north-east	01/08/2014
Noctule - *Nyctalus noctule* (1 record)	As above	760m south-east	09/07/2013
Common pipistrelle - *Pipistrellus pipistrellus* (5 records)	As above	760m south-east	09/07/2013
Soprano pipistrelle - *Pipistrellus pygmaeus* (3 records)	As above	760m south-east	09/07/2013

Internal & External Buildings Assessment for Roosting Bat Species

Main house (B1)

3.3 The main house on site (B1) was two-storeys with solid brick walls. The outer walls were intact, with no notable crevices in brickwork. The roof featured clay tiles, which were largely intact and tightly fitting, presenting no noticeable potential roost features (PRFs) for crevice dwelling species, or potential access/egress into the roof void. However, a small number of external PRFs were identified, comprising: a gap under wooden board on southern dormer, gap under hanging tiles on the eastern gable end, a small gap under a couple of tiles on the western aspect.

3.4 Two roof voids were present, only the northern void being directly accessible. The interior of the northern void measured *c.*2m floor to apex and was one complete space with no internal divisions. The apex of the timber framework formed a crevice at the top, providing a suitable PRF. Tightly packed plastic sheeting enclosed the insulation tightly clad to the sarking. This was in good condition with no rips or tears of obvious access point for bats into the loft void. The entirety of this void was inspected and found no droppings or evidence of roosting bats. The southern void was partially visible owing to a large hole in the ceiling of the room beneath the eastern end of the void. The void appeared to be a similar size and structure to the northern void, however, lacked the modern insulation.

3.5 Owing to the small number of external features, B1 was assessed as having moderate potential to support roosting bats.

Small barns/stables (B2, B3, B4 & B6)

3.6 Four small single-storey barn buildings were present to the north and east of B1. All had a timber frame and roof structure with brick walls covered in a plastered render. The roofs were clad in clay tiles, with wooden boarding at the gable ends. The interior of the buildings were open to the apex, with bitumen felt lining under the tiles. Gaps were present under several lifted/broken tiles, creating PRFs for crevice dwelling bats between the felt and the tiles. The main voids of the buildings, however, were considered unsuitable owing to the high levels of natural light and disturbance from regular use by horses and hostelers. As such, B2, B3, B4 and B6 were assessed as having moderate potential to support roosting bats.

Large barn (B5)

3.7 The barn in the north-eastern corner of the site, adjacent to B4 was significantly taller than the other barn buildings. Other than its height, it was of a similar construction with brick walls with rendered plaster, timber frame and roof structure. The underside of the roof was clad in bitumen felt, with clay tiles above. A much larger number of gaps under lifted/missing tiles were present on this roof, and the interior is completely dark when the door is closed. As such, this building was assessed as having high potential to support roosting bats.

Outbuilding (B7)

3.8 A small single-storey structure to the south-west of B1, with brick walls, large windows, and a flat roof with no void. The interior of the building was very well-lit owing to the large windows. As such, this building was assessed as having negligible value for roosting bats.

Trailer (B8)

3.9 A small horse trailer used for storage of equipment was located in the north-west of the site. This presented no PRFs and as such was assessed as having negligible potential to support roosting bats.

Large stables (B9)

3.10 A large 'U'-shaped stable block was located in the north-west of the site. This was of timber construction with a pitched roof clad in corrugated asbestos sheeting. The stables housed up to 14 horses, as well as two actively used storage rooms. No roof voids or other cavities were present within the building. As such was assessed as having negligible potential to support roosting bats.

Break room (B10)

3.11 A small single-storey building was located to the east of B9 in the north-west of the site. This featured brick walls and a shallow pitched roof clad in roofing felt. No PRFs were identified on the building and as such was assessed as having negligible potential to support roosting bats.

Emergence Survey

3.12 Three emergence/re-entry surveys each were recommended for B5 and two recommended for B1, B2, B3, B4, and B6 based upon the initial assessment. The first emergence survey for B2, B3, B4, and B5 was undertaken on the 20th September 2021, and the first dusk emergence survey for B1 and B6 was undertaken on the 27th September 2021.

B2, B3, B4, B5 - 20th September 2021 - Dusk Emergence Survey

3.13 This survey was undertaken on the 20th September 2021, and covered buildings 2-5. A total of five surveyors and an IR camera were utilised to cover the visible PRFs on the buildings. Sunset was at 19:04, and conditions were clear and dry with and a light breeze. The air temperature started at 18°C and fell to 17°C by the survey's conclusion.

3.14 The first bat of the survey was at 19:24 when a common pipistrelle (Pipistrellus pipistrellus) was recorded flying from the south to the north between B2 and B3. The next bat recorded was also a common pipistrelle at 19:30 following the same route. The first bat recorded around B4 and B5 was a common pipistrelle which flew along the eastern treeline from south to the north over B5. Throughout the remainder of the survey surveyors continued to detect low numbers of common pipistrelle passes with a mix of foraging and commuting behaviour detected. It is estimated a total of 11 individuals were recorded with one individual foraging continuously around the south of B3/B4/B5 for 30 minutes. No other bat species were recorded during this survey. No bats were seen to emerge from B2, B3, B4 or B5.

B1, B6 - 27th September 2021 - Dusk Emergence Survey

3.15 This survey was undertaken on the 27th September 2021, and covered B1 and B6. A total of Three surveyors and an IR camera were utilised to cover the visible PRFs on the buildings. Sunset was at 18:48, and conditions were clear and dry with and a mild breeze. The air temperature started at 15°C and fell to 13°C by the survey's conclusion.

3.16 The first bat of the survey was at 19:13 when a common pipistrelle was recorded flying from the eastern scrub belt over B6, and then foraging around the south, east and occasionally west of B1 until the end of the survey. A second common pipistrelle joined the first at 19.25 for seven minutes. A brown long-eared bat was recorded at 19:31 foraging to the south of B1 with a further five recorded over the following hour, although it was not clear if these were the same individual. No other bat species were recorded during this survey. No bats were seen to emerge from B1, or B6.

4.0 Discussion

Habitat

4.1 The site does have some connectivity to suitable bat habitat within wider landscape, including numerous block of woodland. However, commuting/foraging habitat within the site itself was largely limited to tree and scrub belts around the edges of the open fields on site.

4.2 During the first emergence survey, low levels of foraging and commuting bat activity were recorded on site. Most commuting bats approached from the south heading north along the eastern scrub belt, but the further emergence/re-entry surveys will provide more information.

Bat Surveys

4.3 The preliminary roost assessment identified PRFs on six buildings on site, including lifted/broken tiles, gaps under wooden gable boarding, and gaps under hanging tiles. B5 was assessed as having high bat potential, B1, B2, B3, B4, and, B5 as having moderate bat potential, and remaining building on site as having negligible roosting potential. It is likely any proposals will involve the demolition or extensive alteration of the buildings on site. As such, the presence or likely absence of bat roost must be determined for each of these buildings.

4.4 A single dusk emergence survey was subsequently carried out on buildings 1-6 over two different nights in September 2021. No bats were recorded emerging from the buildings however, brown long-eared bats were recorded to the south of B1 shortly after their typical emergence time. The only other bats recorded were common pipistrelle, which were seen commuting south to the north, and foraging around the south-east of B1.

4.5 In line with BCT guidance, further surveys are required in the bat maternity season (May -August), comprising: a dawn emergence survey on B1-6, as well as an additional dusk emergence survey on B5. If bats are confirmed roosting in any of these buildings, an

additional survey may be required to bring the total surveys of that building up to three, in support of an application for an EPSM licence from Natural England.

4.6 No works to these buildings should be conducted until, either: all recommended surveys have been completed, confirming likely absence of a roost; or, if a roost is confirmed, then after the EPSM licence is granted by Natural England.

4.7 However, mitigation measures are outlined below, based on the identification of a maternity roost by common species (pipistrelle species and brown long eared bat species).

Recommendations and Enhancements

4.8 The full mitigation requirements for the scheme will not be known until all required surveys are completed. However, as a minimum, the use of bat boxes and bat tubes within the scheme (as detailed below) would be recommended, in combination with a native planting scheme for bats.

4.9 The use of an Eco Rocket Box will be established to provide alternative roosting for the BLEs, if these are identified to be roosting on site. The Eco Rocket Bat Box has a large continuous wooden roosting space which surrounds the pole on all four sides. This enables the bats to move within the box, adjusting their position throughout the day as they select their preferred micro-climate. The cavity box is designed for cavity-roosting bats such as brown long-eared bats. This box structure is shown in figure 4 below.

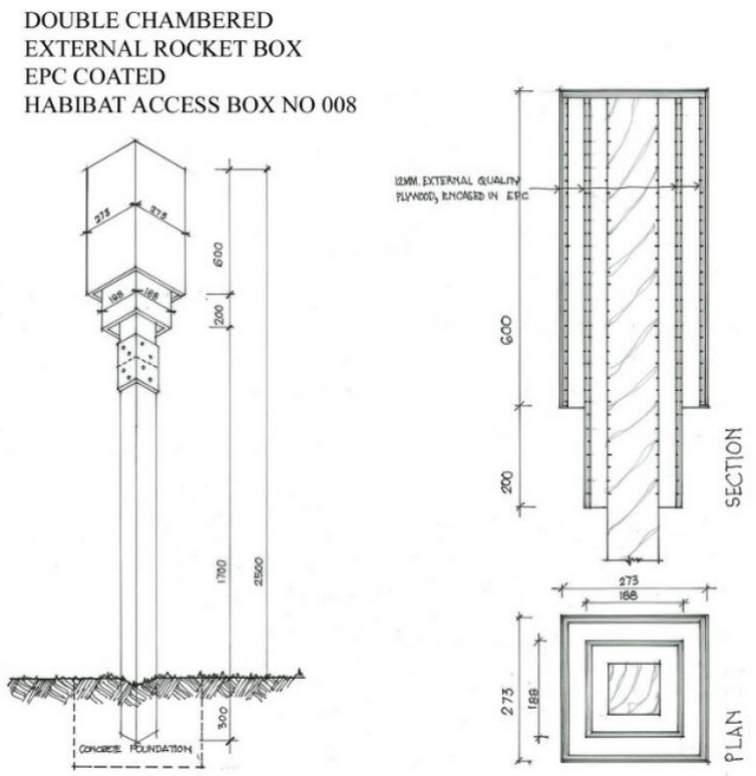

Figure 4: Double chambered rocket.

4.10 Recommended bat tubes to be installed in a number of new houses within the development. These should include Schwegler 2FR Bat Tubes and Habibat 001 bat boxes unfaced (Figure 5). Both require no maintenance as droppings fall out of the entrance ramp. The added benefit of the Schwegler 2FR tubes is that connecting holes allow several tubes to be placed next to each other to create a large roost space. These should be placed where they will receive sunlight for most of the day as temperature is an important factor in the success of artificial bat roosts. They should also be placed as close to the eaves or gable apex as possible and not above windows to reduce the risk of cat predation.

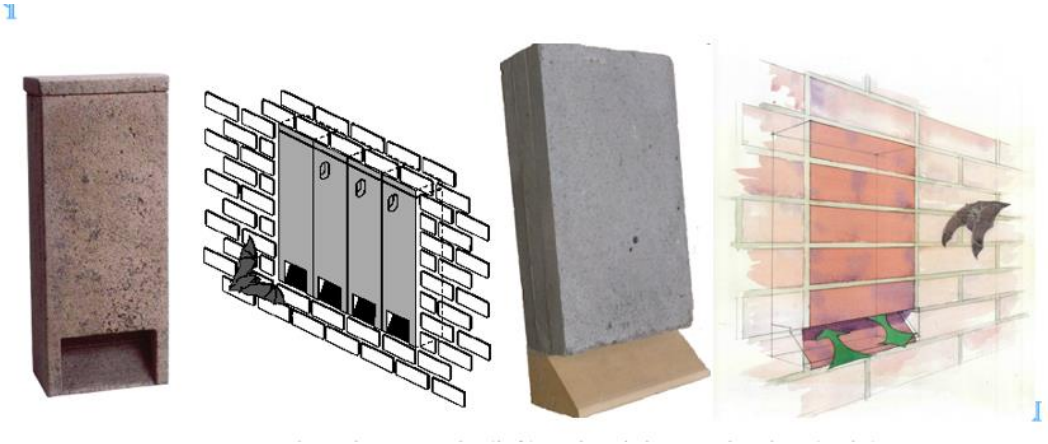

Figure 5: Schwegler 2FR tube (left) and Habibat 001 bat box (right)

4.11 Installing bat boxes on retained mature boundary trees will provide roosting opportunities for bats on site. Suitable bat boxes include a variety of wooden bat boxes, such as an improved cavity box, a double chamber bat box and other wood based varieties. Recommended boxes include:

- Vivara Pro WoodStone Bat Box – A general purpose bat box that supports a range of species (Figure 6). These can be hung on trees in a variety of heights and aspects in order to provide a variety of micro-climates.
- Large Multi Chamber WoodStone Bat Box – This is a multipurpose box designed for larger colonies and a range of bat species including pipistrelles, noctules and brown long-eared bats. These should be hung on mature trees around the site (Figure 6).

Figure 6: Vivara Pro WoodStone Bat Box (left) and Large Multi Chamber WoodStone Bat Box (right)

4.12 Recommendations for maintaining and enhancing the value of the site for commuting and foraging bats is outlined in the PEA (The Ecology Partnership, 2021), including use of a bat sensitive lighting strategy, and protection and strengthening of vegetated commuting corridors.

5.0 Conclusions

5.1 An internal and external inspection of the buildings on site on 15/09/2021, assessed B1, B2, B3, B4, and B6 as having moderate bat potential and B5 as having high bat potential, although no evidence of bats was identified in any of the buildings. In line with BTC guidelines, two emergence/re-entry surveys were recommended for the buildings with moderate potential and three surveys for the building with high potential to confirm the presence or likely absence of a roost. The remaining buildings on site were assessed as having negligible potential to support roosting bats and no further survey was recommended.

5.2 The first emergence surveys was carried out of buildings B1-6 over two night in September. No bats were recorded emerging from the buildings. Activity was restricted to two species: common pipistrelle, which were commuting and foraging throughout the area around the buildings in low numbers; and, brown long-eared bats, which were recorded foraging in the garden to the south of B1.

5.3 The remaining surveys for the buildings must be conducted in the main bat maternity season May-August, before the presence/likely absence of a roost can be determined for each building. This report will be updated following these surveys.

5.4 General recommendations and enhancements have been outlined within this report, however, full mitigation requirements will be detailed once all surveys have been completed. aimed at maintaining the most ecologically valuable features of the site post-development.

6.0 References

Bat Conservation Trust., (2018)., *Bats and artificial lighting in the UK.* Guidance Note 08/18, London.

CIRIA C567., (2005)., *Working with wildlife – site guide*. CIRIA, London.

Collins, J. (ed.)., (2016)., *Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edition).* The Bat Conservation Trust, London.

Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.

The Ecology Partnership (2021) Land South of Chiswell Green Lane – Preliminary Ecological Appraisal

Internet resources:

Magic Interactive Map: www.magic.gov.uk

Google Maps: www.google.co.uk/maps

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