



Kent Sussex Ecology

Company no. 14209453

Bat Emergence Survey

Huggens College, Gravesend

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Luke Wallace ACIEEM

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1.0. SUMMARY

The results of the bat emergence survey denote the presence of a small Common Pipistrelle maternity roost in one of the buildings on-site (building B7, apartment 25). As bats are a European protected species, and because this building will be demolished and replaced as part of the proposed development, mitigation measures will need to be implemented during the construction phase under licence from Natural England. Compensatory roost measures will have to be implemented to ensure that the favourable conservation status of this species is maintained. Additionally, an occasional roost site is likely present in building B9 (the chapel), and so mitigation measures should be implemented regarding impacts to this building during construction.

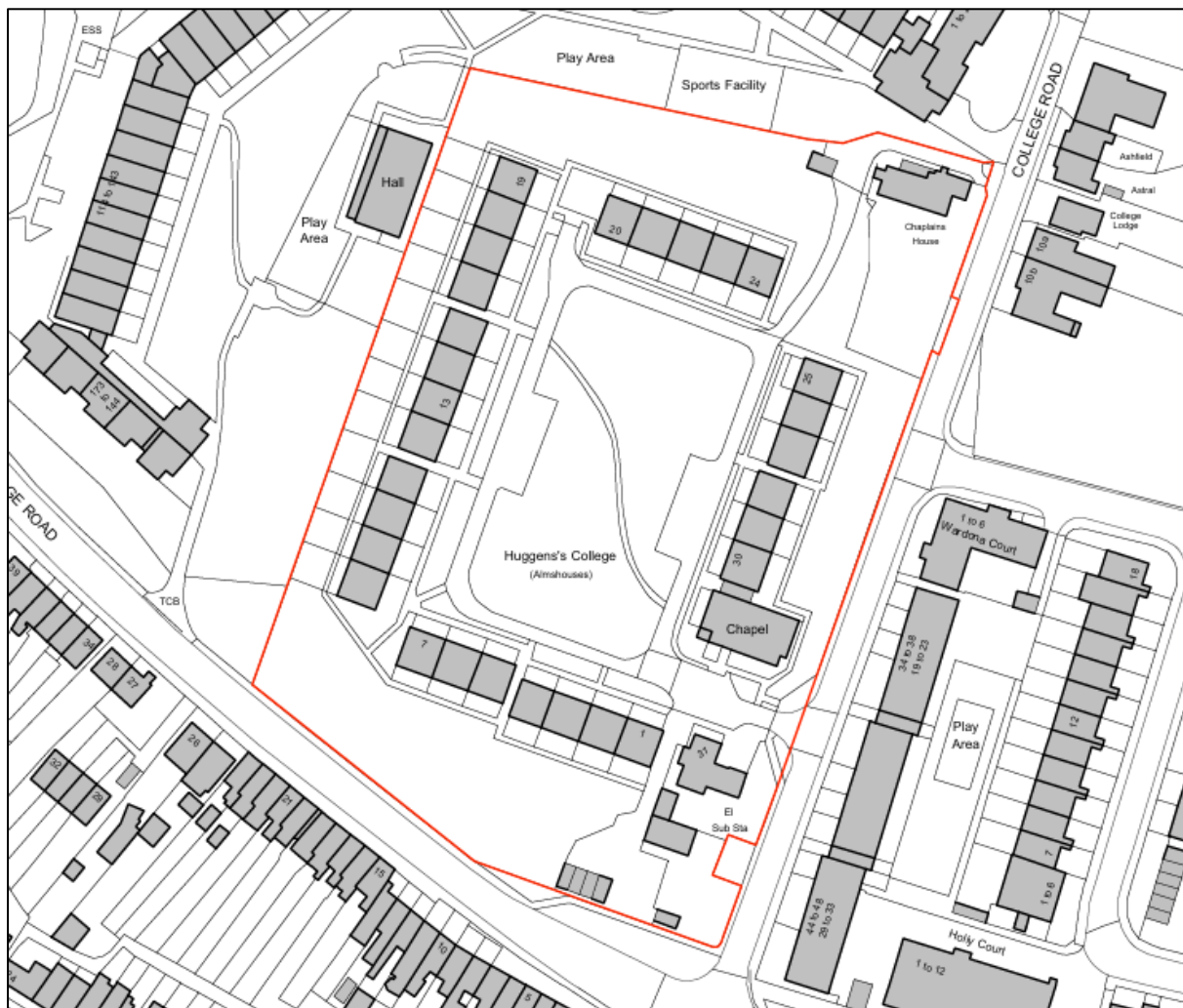


Figure 1. Site location plan.



2.0. INTRODUCTION

- 2.0. Kent Sussex Ecology was commissioned to undertake a bat emergence survey at 'Huggens College, College Road, Gravesend, Kent. DA11 9DL'. The site is centred at OS grid reference TQ 561700 174610 and is 1.73ha in size.
- 2.1. The site encompasses eight single-storey residential apartment blocks, which are comprised of three and four individual apartments (B1 – B8). One of these blocks adjoins a larger chapel building (B9). Two more separate residential buildings are present; the chaplain's residence (B10) in the northeast corner and the lodgekeeper's residence in the southeast (B11). Three smaller auxiliary buildings are present; an asbestos garage, a workshop and laundry facility (all situated in the southeast of the site).
- 2.2. Natural habitat on-site primarily consists of maintained amenity lawn and a tree-lined/scrub boundary. Some silver birch and fruit trees, as well as a dense hedgerow, are situated within the site. Some priority habitat lowland deciduous woodland (optimal bat roosting and foraging habitat) is present nearby.
- 2.3. All built structures were subject to a preliminary roost assessment (PRA) on 5th July 2023 (Preliminary Ecological Appraisal Kent Sussex Ecology July 2023), which included an internal inspection of most roof cavities. Based on the results of this survey, B1, B4, B6, B7, B9, B10 and B11 were all subject to bat emergence surveys.
- 2.4. Buildings B1, B4, B6 and B11 were subject to one emergence survey (per roost feature), as these were assessed as 'low suitability' for roosting bats. Buildings B7 and B10 were subject to three emergence surveys due to the presence of bat droppings on the exterior (confirming use as a bat roost).
- 2.5. The objectives of the emergence surveys were to:
- Determine the species, size and potential significance of any bat roost within the buildings identified as having bat roost potential, and;
 - Recommend appropriate mitigation and compensation for protected species where necessary.

3.0. METHODOLOGY

3.1. SURVEYORS

- 3.2. The principal surveyor was Kate Baldock MSc BSc MCIEEM (licence no. CL18 2015-12362-CLS-CLS), who is a registered consultant on the Bat Low Impact Class Licence and has over 17 years of experience in this field. The other principal surveyor, Clair Thackray, is currently the county recorder for Kent Bat Group, a registered user of Bat Level 2 Survey Class Licence CL18 (licence no. 2023-11064-CL18-BAT), and has over 18 years of experience in this field.



- 3.3. The third surveyor was Luke Wallace ACIEEM (author of this report), who has seven years of experience in bat surveying (including emergence and transect surveys), and the fourth surveyor was Lyndsay Wayman-Rook, who has eight years of experience in the field, including carrying out hibernation surveys and harp trapping for both private companies and the Kent Bat Group.

3.4. THE SURVEYS AND ANALYSIS

- 3.5. The surveys commenced 15 minutes before sunset and continued until 1 hour 30 minutes after sunset. Surveys were undertaken during appropriate weather conditions. The surveys for buildings identified as having confirmed bat roosts had two-week intervals between each of the three surveys, as per the formal guidance (3rd Edition)¹.
- 3.6. Both audio and visual recording equipment was used and all surveyors had two-way radios for communication throughout the survey periods. Equipment used included:
- EM Touch Pro (x2);
 - Elekon Batloggers (M and M2);
 - Nightfox Red HD Night Vision Goggles (x1), and;
 - Nightfox Whisker Night Vision Binoculars (x3).
- 3.7. The limited number of video recording equipment meant that these were strategically placed during the survey visits, primarily focused on the buildings with the confirmed bat roost and, on one occasion, covering a 'low suitability' roost feature.
- 3.8. The sonograms were analysed and compared to identification parameters. Both direct viewing and motion analysis software (Motion Meerkat) were used to analyse the video footage.
- 3.9. A bat activity score was calculated using the following formula; total number of passes (from the survey location with the most activity) divided by the duration of the survey. Of note, this methodology is not in alignment with any official guidance.

3.10. CONSTRAINTS

- 3.11. It is not always possible to identify each bat pass to species level due to either non-echolocation, poor recordings of their echolocations or the similarities between the echolocations of bat species. The Myotis genus is difficult to separate to species level because of the plasticity of the calls and overlapping of call characteristics between the different species. Where species identification has not been possible, the genus of bat has been provided based on call parameters. Equally, there is no guarantee that motion detection software will identify every frame with movement regarding the camera footage; however, much of the footage was checked manually.

¹ Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)



- 3.12. This report will remain valid for 12 to 18 months in accordance with current CIEEM guidance. To obtain a Natural England licence (to allow works in relation to a confirmed roost), survey data from the last year/the most recent season will be required.

4.0. RESULTS

4.1. 23RD JULY 2023 VISIT

- 4.1.1. Four surveyors present. Two surveyors were situated facing the potential roost features (PRF) of building B1 and B11. The third surveyor was situated facing the PRFs of building B9 (the chapel) and the fourth was situated facing the PRF of B7 (northern end of apartment 25). Cameras were positioned facing the PRFs of buildings B9 and B7.

Survey	Buildings	Temperature	Wind	Cloud	Conditions
1	B1, B7, B9 & B11	20°C - 18°C (dry)	BF3	70%	Consistent

- 4.1.2. No bats were observed emerging from B1, B9 or B11. However, emergence was observed at the gable end of building B7. Specifically, Common Pipistrelles were seen emerging from tiles just above the northern gable end of B7. Times and numbers were:

- 21.15 x 2 Common Pipistrelle.
- 21.19 x 1 Common Pipistrelle.
- 21.24 x 1 Common Pipistrelle.

There was constant foraging and commuting along the eastern boundary of the site, with a bat activity score of 23 (low). Noctule was also noted.

4.2. 2ND AUGUST 2023 VISIT

- 4.2.1. Three surveyors present. Two were located facing the PRFs identified on the south elevation of the chaplain's building (B10) and the third surveyor was situated facing the PRFs of building B4. Two cameras were positioned facing the PRFs of the chaplain's building.

Survey	Buildings	Temperature	Wind	Cloud	Conditions
2	B4 & B10	18°C (dry)	BF3	90%	Variable

- 4.2.2. No bats were observed emerging from either of the buildings during this survey visit. There was a short period of light rain during the survey. The bat activity score (for the activity around the chaplain's house) was 40 (medium). Noctule was also noted.

4.3. 10TH AUGUST 2023 VISIT

- 4.3.1. Three surveyors present. One surveyor was situated facing the PRFs on the eastern end of building B6. The second surveyor was situated facing the PRFs of building B9 (the chapel) and the third was situated facing the PRF of building B7 (northern end of apartment 25). Cameras were positioned facing the PRFs of buildings B9 and B7.



Survey	Buildings	Temperature	Wind	Cloud	Conditions
3	B6, B7 & B9	22°C (dry)	BF3	100%	Consistent

- 4.3.2. No bats were observed emerging from the eastern end of building B6 or from building B9. A total of five Common Pipistrelles were observed emerging from the northern gable end of building B7 (in the same location where the four pipistrelles had emerged on the 27th July). Times and numbers were:

- 20.44 x 1 Common Pipistrelle.
- 20.47 x 2 Common Pipistrelle.
- 20.51 x 1 Common Pipistrelle.
- 20.59 x 1 Common Pipistrelle.

There was constant foraging and commuting along the eastern boundary of the site, with a bat activity score of 37 (medium). Noctule was also noted.

4.4. 24TH AUGUST 2023 VISIT

- 4.4.1. Three surveyors present. One surveyor was situated facing the PRFs on the western end of building B6. The second surveyor was situated facing the PRFs of building B9 (the chapel) and the third was situated facing the PRF of building B7 (northern end of apartment 25). Cameras were positioned facing the PRFs of buildings B9 and B7.

Survey	Buildings	Temperature	Wind	Cloud	Conditions
4	B6, B7 & B9	22°C - 20°C	BF3	100%	Consistent

- 4.4.2. No bats were observed emerging from the western end of building B6 or from building B9. A single pipistrelle was observed emerging from the same area of building B7 as identified during the previous surveys. This individual did not echolocate but is presumed to be a Common Pipistrelle (consistent with previous survey results).

- 20.22 x 1 (Presumed) Common Pipistrelle.

There was constant foraging and commuting along the eastern boundary of the site, with a bat activity score of 54 (high).

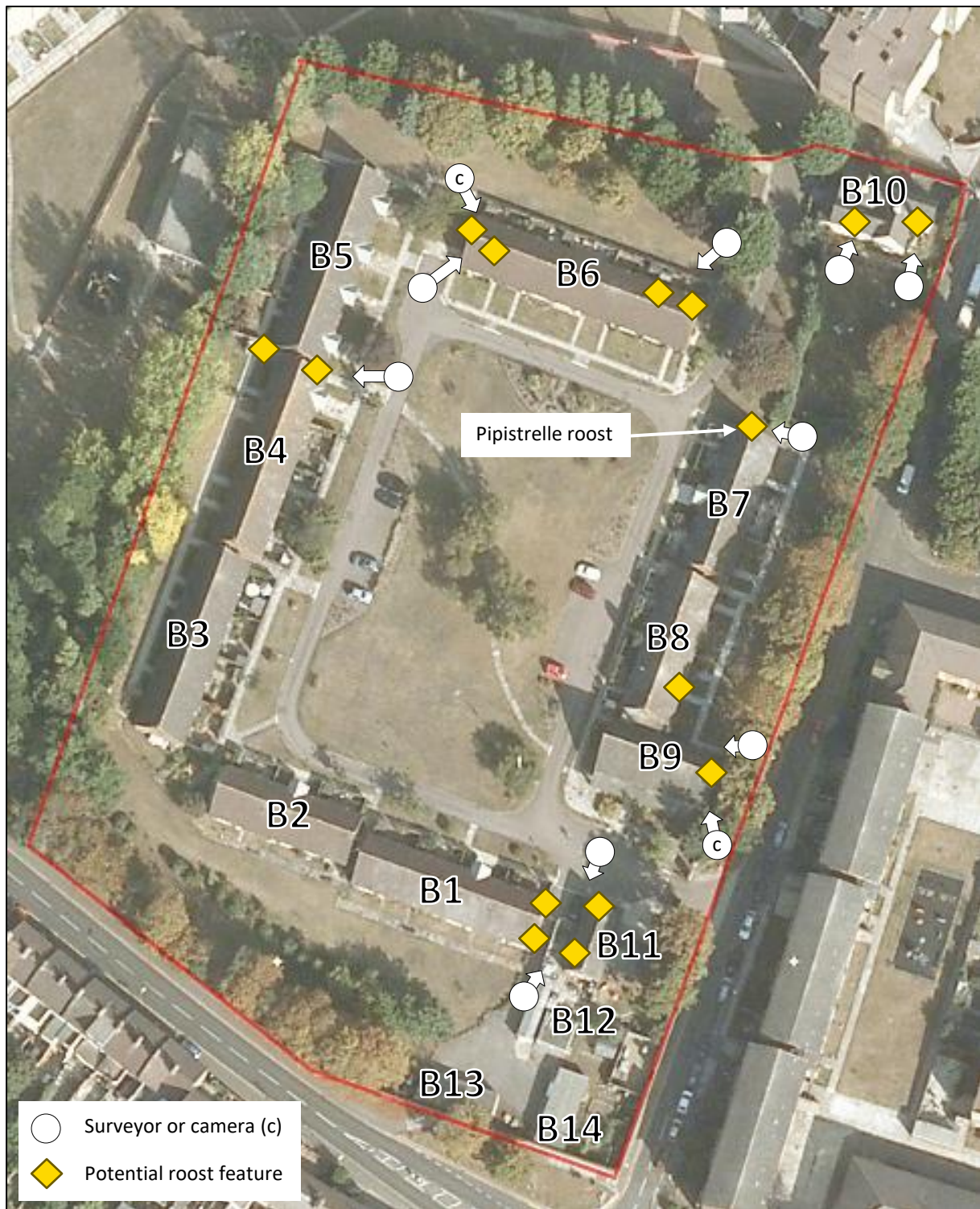


Figure 2. Location of surveyors (or cameras) over the four survey visits, as well as the location of the confirmed roost.

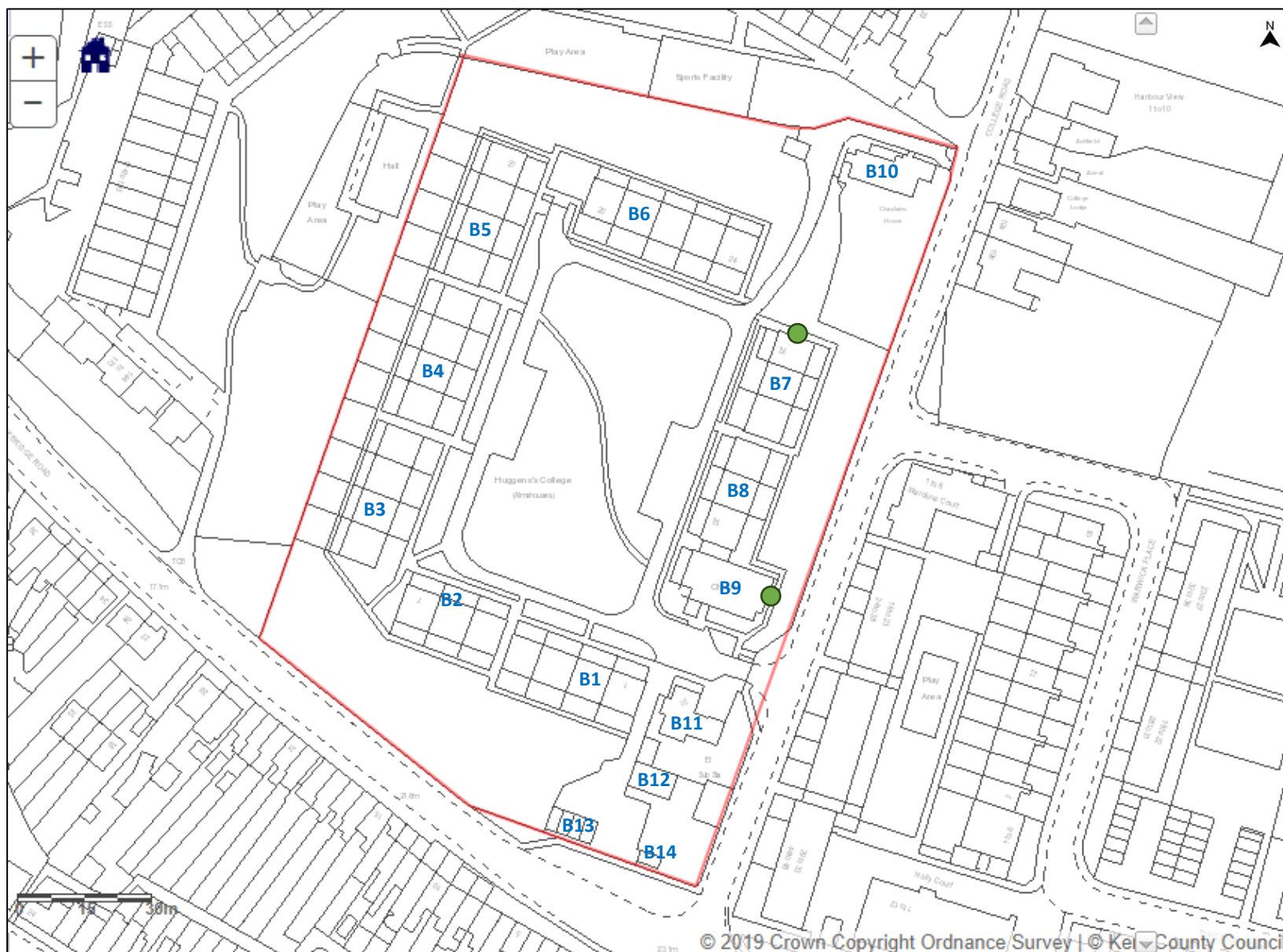


Figure 3. Site plan with the buildings and location of the confirmed roosts (green circles).

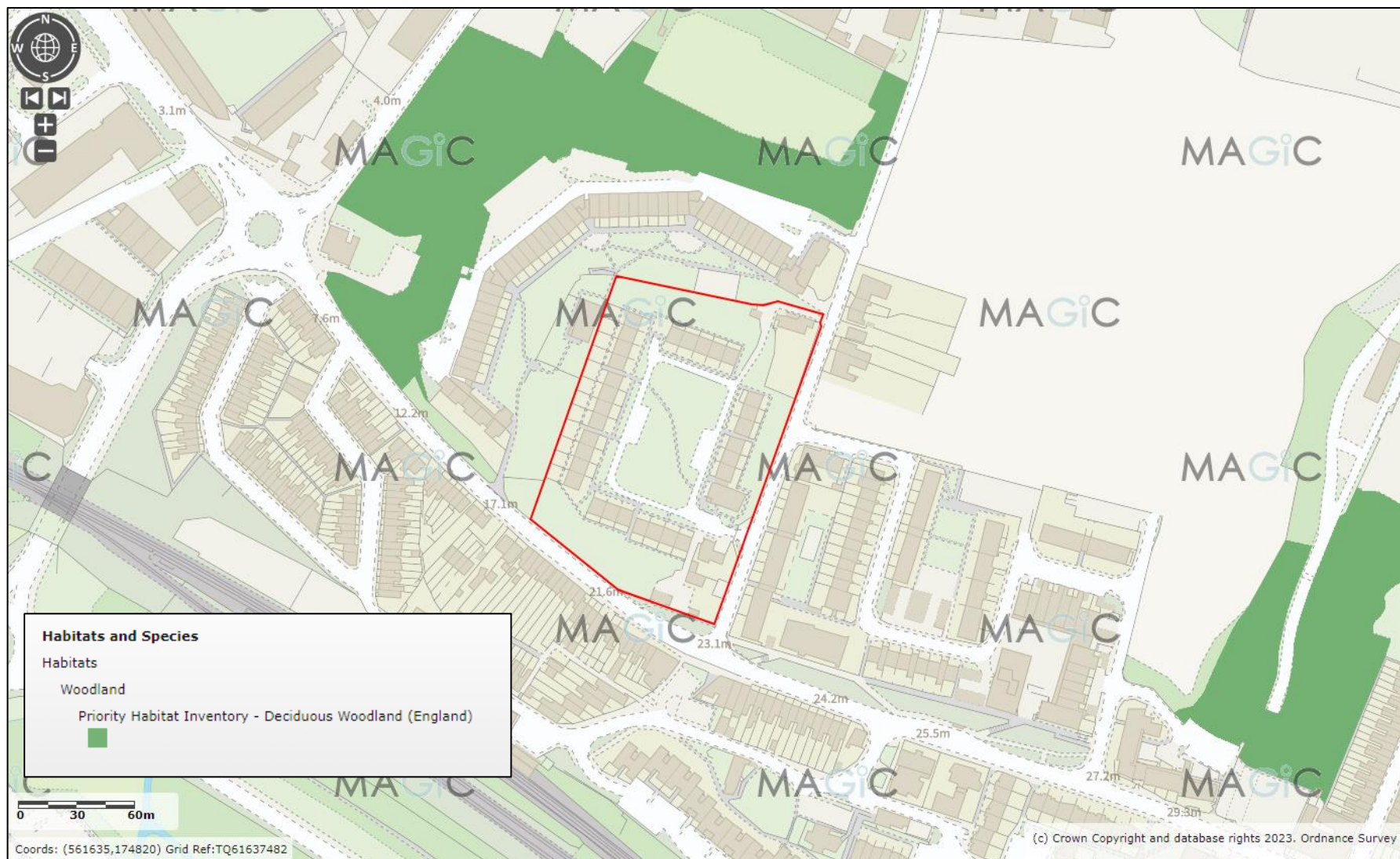
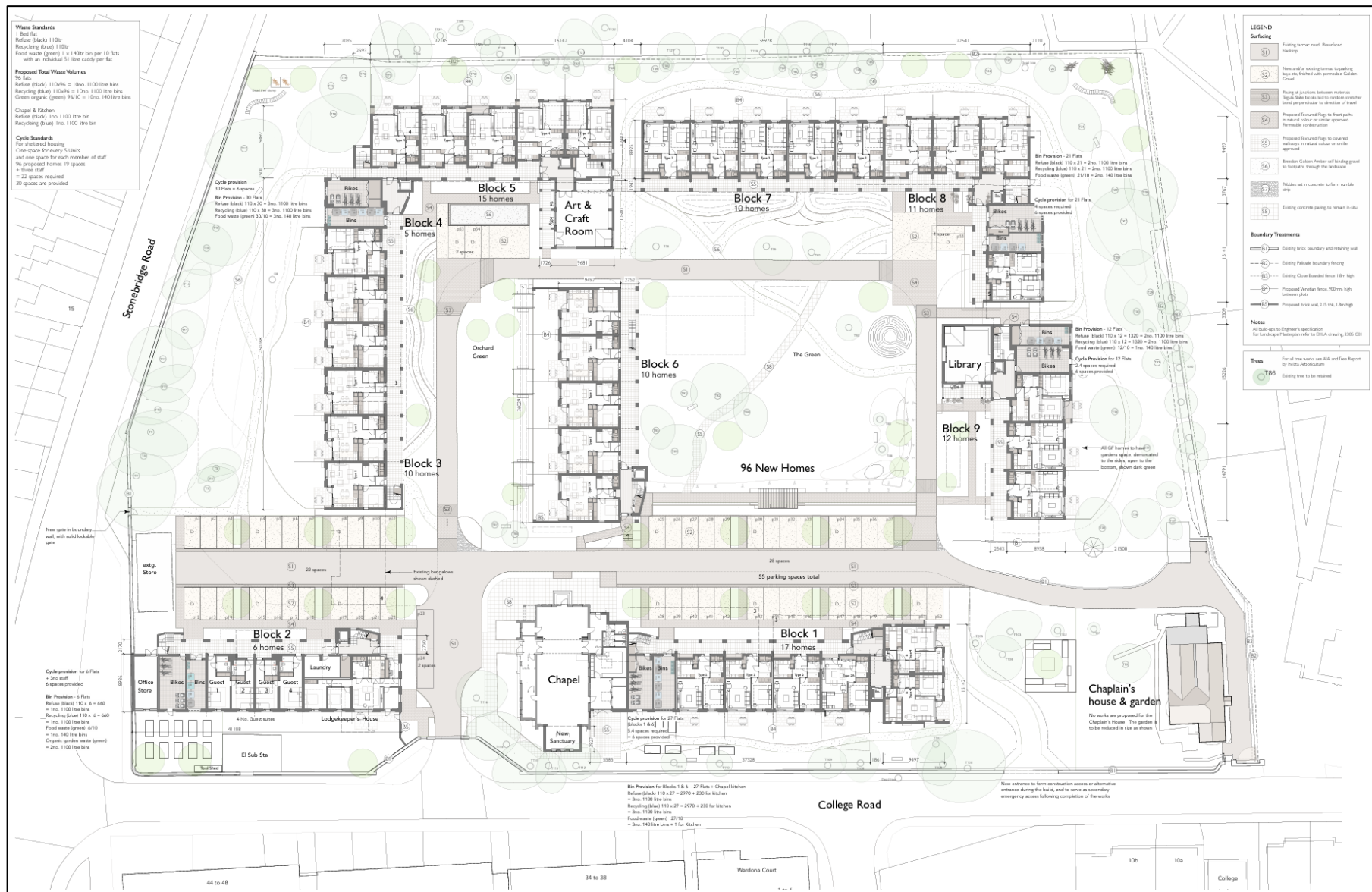


Figure 4. The lowland deciduous lowland priority habitat woodland around the site, which is suitable bat foraging





5.0. CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

- 5.2. Paragraph 99 of the ODPM 06/2005 states that “it is essential that the presence or otherwise of protected species and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision”.
- 5.2.1. A peak of five Common Pipistrelles were observed emerging from the northern gable end of building B7 (apartment 25), with the emergence of pipistrelles observed on all three survey visits at this locality. The frequency and number of emerging Common Pipistrelle at this locality suggest this is a small maternity roost. As such, this roost is considered important at a district level in alignment with CIEEM’s bat mitigation guidance². Of note, the internal roof void of apartment 25 was inspected during July’s scoping survey and no roosting evidence (droppings, staining, etc) was observed.
- 5.2.2. No other bat emergence activity on-site was observed. However, as droppings (likely to be from this year) were found on the eastern elevation of the chapel building (building B9), a day/occasional roost at this location cannot be ruled out. As with apartment 25, the internal roof void of the chapel was inspected during July’s scoping survey and no roosting evidence (droppings, staining, etc) was observed.
- 5.2.3. General bat activity ranged from ‘low’ to ‘high’, with the vast majority of the passes being made by Common Pipistrelle. The average activity score across was 39, which denotes a ‘medium’ score. In addition to Common Pipistrelle, Noctule passes were also noted.
- 5.2.4. As the proposed development would result in the loss of buildings B7 (which will be replaced by a different structure) there would be a permanent loss of a bat roost and potential harm to individual bats incurred in the absence of mitigation and compensation measures, respectively. There may also be adverse impacts to bats during the renovation of building B9. This would be an offence under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

5.3. RECOMMENDATIONS

- 5.3.1. In Britain, all species of bat are afforded full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended), with the latter legislation making any species of bat a European protected species (EPS). Specifically, under this legislation, it is an offence to:
- deliberately capture, injure or kill bats;
 - damage, destroy or obstruct access to a breeding or resting place, and;

² [Bat-Mitigation-Guidelines-2023.pdf](#)



- intentionally or recklessly disturb a bat while it's in a structure or place of shelter or protection.

5.3.2. As such, a European protected species mitigation (EPSM) licence will be required to carry out the proposed development due to the impacts on roosting bats. The Conservation of Habitats and Species Regulations require the competent authority to have regard to the requirements of the Habitats Directive in the exercise of their functions. As such, the planning authority will consider whether it is likely that an EPSM Licence from Natural England will be granted, and in so doing must be satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."

5.3.3. As a bat roost has been confirmed in buildings B7 and B9, any works to these buildings (which impact the identified roost locality) must be subject to mitigation measures under licence from Natural England. The licence will be granted after planning permission has been granted, but the local planning authority requires suitable mitigation measures to be demonstrated prior to the determination of the application.

5.4. OUTLINE MITIGATION MEASURES

5.4.1. The mitigation measures outlined below are only recommendations, and it must be noted that the final mitigation measures required will be decided by the expert applying for the associated licence and subsequently approved by Natural England. Survey information from the most recent survey season will be needed to obtain a Natural England licence.

5.4.2. As the Common Pipistrelle roost is likely to be a small maternity roost, months to avoid works to the roof of building B7 (and B9) would be May to August, inclusive. Equally, to minimise the impact on any potentially *hibernating* bats in this roost space, works to the roof should not be undertaken during the months of November to March. This leaves October or April as the optimum time period for the dismantlement of the roof. However, the 'hibernation potential' for this roost site was classified as 'low to moderate' in accordance with BatAbility guidance³.

5.4.3. While April or September to October is the time when bats are least vulnerable to disturbance, preventing all works to low/moderate hibernation structures for the entirety of the November to March period in case a winter-roosting bat could be present is impractical and disproportionate. As such, the section below outlines the most practical methodology to address this concern if works are to take place during the period of November to March.

5.4.4. With reference to the BatAbility assessment methodology, it is concluded that for structures with moderate potential for small numbers of hibernating bats, then the risk of harm for any torpid bats found can be reduced by only stripping roofs when it is dry/calm and temperatures

³ *Assessing Sites for Hibernation Potential. A Practical Approach, including a Proposed Method & Supporting Notes.* Neil Middleton (BatAbility Courses & Tuition) Version: Draft/V2.2019 Dated: 08.10.2019



are no lower than 8°C for at least an hour or two from dusk on 3-4 consecutive nights (which would be sufficient for bats to be active and to feed). Additionally, the works should be covered by a method statement appropriate to the level of risk and care facilities put in place for any bats found.

- 5.4.5. During the construction phase, it is recommended that the tiles on buildings B7 and B9 be removed by hand and under the supervision of a licenced bat ecologist. If bats are found during construction activities, having a licenced bat ecologist present will ensure no harm comes to the bat(s) and that legislation is not breached.
- 5.4.6. In alignment with CIEEM's bat mitigation guidance, an appropriate replacement roost must be incorporated into the development to ensure 'favourable conservation status' is maintained. Given that the roosts pertain to crevice-dwelling species (Common Pipistrelle), the replacement roosts should incorporate space for this species, i.e., crevice space under tiles or structures that mimic this. Ideally, this should be in the same approximate area, and have the same height and aspect.
- 5.4.7. Traditional bitumen roofing felt will need to be used to line the roof rather than breathable roofing membrane, which is a material known to entangle bats due to the loosening and disintegration of fibres.
- 5.4.8. External and internal lighting must not impact the new roosts and, in general, lighting across the development should be designed in a sensitive manner so maintain a suitable environment for bats. The 2023 'Bats And Artificial Lighting At Night' document by the Bat Conservation Trust provides guidance on appropriate lighting design. Examples include:
- Only luminaires with 0% upward light ratio should be used and fitted on the horizontal to avoid excessive up-lighting, back lighting and light spill;;
 - Lamps of greater than 2000 lumens (150 W) must not be used;
 - Light emitting diodes (LED) should be used, as these typically feature no UV component and as a result are less attractive to invertebrates and less disturbing to bats;
 - A warm white spectrum (ideally under 2700 Kelvin) should be used in order to reduce blue light component, therefore reducing the number of invertebrates attracted to the lights;
 - Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;
 - Movement sensors or timers must be used - they must be carefully installed and aimed, to reduce the amount of time a light is on;
 - Light must illuminate only the immediate area required, by using as sharp a downward angle as possible;
 - Light must not be directed at or close to bat roost access points or flight paths from the roost - a shield or hood can be used to control or restrict the area to be lit;
 - As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed;



- Where habitat needs to be unlit (e.g. important foraging and commuting corridors/roost sites), illuminance should be below 0.2 lux on the horizontal plane and below 0.4 lux on the vertical plane;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- Column heights should be carefully considered to minimise light spill;
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered, although this has certain drawbacks and should only be used as directed by a lighting professional;
- Wide angle illumination must be avoided as this will be more disturbing to foraging and commuting bats as well as people and other wildlife, and;
- Lighting must not illuminate any bat bricks and boxes placed on buildings, trees or other nearby locations.



APPENDIX A: PHOTOGRAPHS



Image capture from the Nightfox IR RED camera, showing a pipistrelle emerging at 21.54 (10/08/2023).



Image of the emergence spot at the beginning of the survey (the northern gable end of building B7).



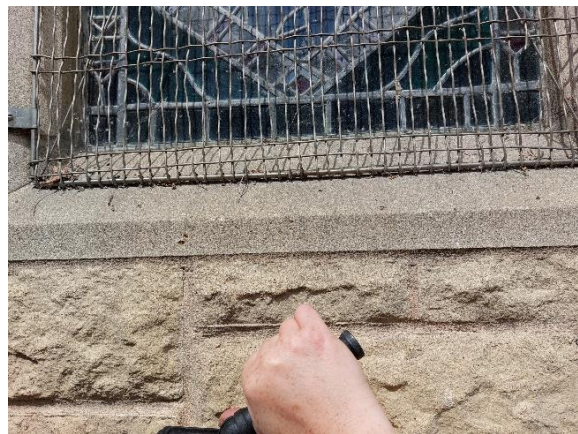
The northern gable end of building B7.



Gaps under the soffit of building B9 (east elevation).



Dropping found on the east elevation of building B9.



Droppings underneath the window (building B9).



Screenshot from building B9 camera (25/08/23).



Screenshot from building B10 camera (02/08/23).



APPENDIX B: LEGISLATION AND POLICY

The Wildlife and Countryside Act (as amended) 1981

The Wildlife & Countryside Act 1981 (as amended) is the principal piece of UK legislation relating to the protection of wildlife. It consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

The Act makes it an offence to:

- Intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2). Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.
- Intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places (subject to exceptions). The Act also prohibits certain methods of killing, injuring, or taking wild animals listed in Schedule 6.
- Uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants (subject to exceptions).
- Facilitate the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

The Conservation of Habitats and Species Regulations 2017

The competent authority will have to adhere to the requirements of the Habitats Directive in the exercise of their functions. As such, they must consider whether it is likely that an EPSM Licence from Natural England will be granted, and in so doing must address the three tests when deciding whether to grant planning permission for the proposed development. The three tests are that:

1. Regulation 55(2)(e) states: a licence can be granted for the purposes of *"preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment"*.
2. Regulation 55(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied *"that there is no satisfactory alternative"*.
3. Regulation 55(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied *"that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."*

Natural Environment and Rural Communities Act 2006

Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as local planning authorities, in implementing their duty under Section 40 of the



Act, to have regard to the conservation of biodiversity in England, when exercising their normal functions. 56 habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP).

National Planning Policy Framework 2023

The National Planning Policy Framework (NPPF) sets out the view of central government on how planners should balance nature conservation with development and helps ensure that government meets its biodiversity commitments with regard to the operation of the planning system.

Section 15 of the NPPF sets out key policy requirements regarding ecology and development.

Paragraph 180 of the NPPF: "Planning policies and decisions should contribute to and enhance the natural and local environment by... ..minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".

Hedgerows Regulations 1997

Important' hedgerows (as defined by the Regulations) are protected from removal (up-rooting or otherwise destroying). Criteria specified in the regulations are employed to identify 'important' hedgerows for wildlife, landscape or historical reasons.

Office of the Deputy Prime Minister 06/2005

Paragraph 99 of the ODPM 06/2005 states that "it is essential that the presence or otherwise of protected species and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision".

