

# CAMBRIDGE NORTH

## 2023 BAT EMERGENCE SURVEY REPORT (INTERIM)

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Bat Emergence Survey  
Report  
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# 1 INTRODUCTION

## 1.1 Purpose and scope of this report

- 1.1.1 In 2022, RPS was commissioned by Brookgate Land Limited to carry out bat emergence surveys at a large derelict shed (Building B1, Figure 2.1) north of Cambridge North Station (RPS, 2022).
- 1.1.2 Two rooms at the north of the building were considered to have moderate potential to be used as a hibernation roost due to the type and location of the structure. At the time of the initial survey, internal access to the two rooms was prevented due to the presence of asbestos. Due to the restricted access, hibernation surveys using only static detectors were undertaken in December 2022, January 2023 and February 2023, reported in Cambridge North Bat Hibernation Survey (RPS, 2023).
- 1.1.3 Building 1 was also considered to have moderate potential to be used as a day or feeding roost due to the type and location of the structure, with potential roost features being gaps in the asbestos sheeting on the buildings south face and the two rooms at the north end of the building. Further emergence surveys were therefore recommended before commencement of development. The first visit was undertaken on 2nd May 2023, and the results of that survey are included in this interim report. The second survey will be carried out on 15th May 2023, and an updated version of this report will be issued when this survey has been undertaken.
- 1.1.4 The aims of the 2023 emergence survey and report were to:
- Survey Building 1 to establish presence / likely absence of bats;
  - Report on the findings of the survey; and
  - Assess the likely impacts (if any) of the refurbishment of B1 on bats and any mitigation measures required to minimise any impacts.
- 1.1.5 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS.

## 1.2 Study area

- 1.2.1 The study area is located on land adjacent to Cowley Road, Cambridge North Station, Cambridge, and comprises dense mainly birch scrub, semi-improved grassland, shrubs, ephemeral/short perennial plant communities and bare ground.
- 1.2.2 Building 1 (B1) is located at the north of the site, within an area of trees and scrub with the rail line running close by, to the east and an industrial area to the north and west. The Cambridge north station car park is located to the south.
- 1.2.3 The location of B1 is shown on Figure 2.1.

## 1.3 Legislation and policy

- 1.3.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) as European Protected Species. It is an offence to:
- intentionally or recklessly kill, injure or capture bats;
  - deliberately or recklessly disturb bats (whether in a roost or not); and

- damage, destroy or obstruct access to bat roosts

- 1.3.2 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, it is commonly accepted that a roost is protected whether or not bats are present at the time of survey.
- 1.3.3 A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.
- 1.3.4 The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe, and Lesser Horseshoe.

## 2 METHODS

### 2.1 Emergence surveys

- 2.1.1 Presence/absence surveys of Building B1, with moderate bat roost potential, are being carried out in May 2023. Figure 2.1 shows the buildings that were surveyed and the location of the ecologists on each survey. Descriptions of the buildings on site can be found in the Preliminary Ecological Appraisal and Preliminary Roost Assessment report (RPS, 2022).
- 2.1.2 Presence / absence surveys involve dusk and / or dawn visits to watch, listen for and record bats exiting or entering bat roosts. The method involves ecologists visiting at dusk or dawn to listen / record with the use of bat detectors and watch for bats emerging or returning to roosts and compile information on species, numbers, access points and roosting locations.
- 2.1.3 Bat detectors were used to record bat echolocation calls of any emerging bats and identify species where possible. Surveyors monitored the buildings using Batlogger M. Calls were analysed using Kaleidoscope and Anlook software to identify bat species recorded in each survey location.
- 2.1.1 Surveyors were positioned outside the buildings, facing the features considered to offer potential bat emergence / re-entry points. The locations of the surveyors and cameras are shown on Figure 2.1.
- 2.1.2 The dusk surveys commenced 15 minutes before sunset, and lasted for 1.5 hours after sunset, in order to record any bats that may emerge from the roost feature.
- 2.1.3 All bat passes, including time and species, were recorded. Where possible the behaviour of the bat was also recorded, including foraging, commuting or feeding behaviour.
- 2.1.4 The surveys were carried out following current guidelines (Collins, 2016). The dates and weather conditions during the surveys are shown in Table 2.1.

**Table 2.1: Dates and weather conditions during bat surveys**

Date	Weather	Sunset time	Start time	End time
02.05.2023	Survey start: 13°C, dry, light cloud cover and light breeze. Survey end: 10°C, dry, light cloud cover and light breeze	20:26	20:11	21:56
15.05.2023				

### 2.2 Static monitoring

- 2.2.1 A static monitoring detector was left out on site during the emergence surveys to record any bat activity. The locations of the static detectors are shown on Figure 2.1.

### 2.3 Bat detectors and data analysis

- 2.3.1 Batlogger M bat detectors were used for the static and emergence survey.
- 2.3.2 The recorded calls were analysed using Kaleidoscope and Anlook software to identify the bat species encountered on each survey.

## 2.4 Limitations

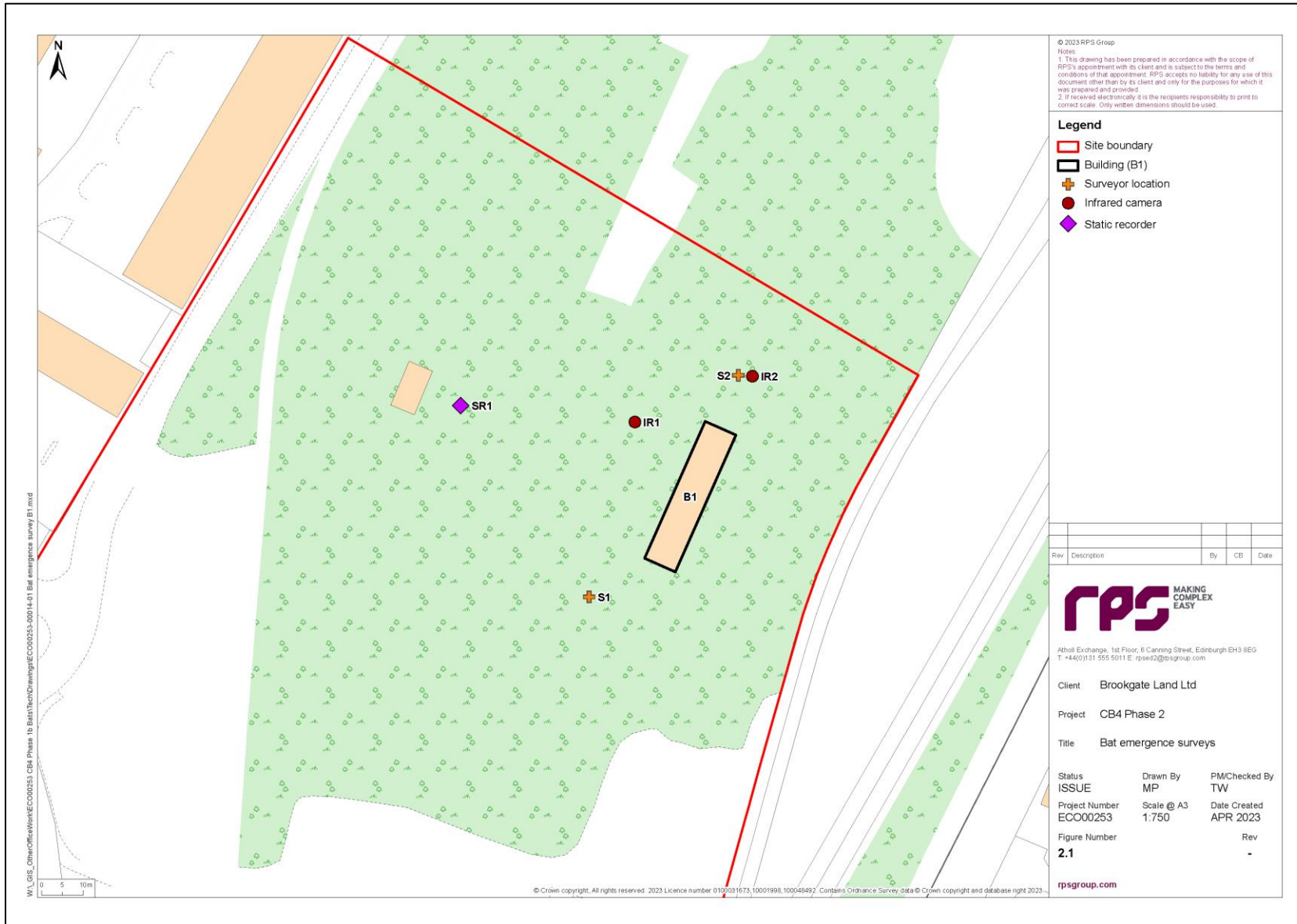
- 2.4.1 The IR camera (IR1) by the windows didn't record between 20:16 and 21:09 on 2 May 2023. However, a static detector was left at this location recorded bats at this location. This is discussed further in the sections below.
- 2.4.2 It should be noted that bats are a group of species with a range of dynamic behaviours and as such, bats can roost in different locations, forage in different areas and preferentially commute along different routes in response to a number of changing physical and environmental factors. Bats exhibit seasonal use of buildings, built structures and trees, and being so mobile may arrive and start using a site after it has been surveyed or be roosting somewhere else during the period it was surveyed.
- 2.4.3 Therefore, this survey provides a snapshot of ecological constraints found to be present at the time and should not be relied upon as evidence of presence / absence for periods longer than one year from the most recent bat survey.
- 2.4.4 The bat data presented in the tables detailing results of the bat surveys shows the number of contacts for different bat species. It is important to note that the number of contacts does not equate to the number of individual bats, as several contacts can be generated by one bat flying past the surveyors several times. Instead, the number of contacts provides an index of bat activity, which can be used to identify areas of habitat of greater or lesser importance for bats.
- 2.4.5 Species identification by sonogram is limited to a certain extent by similarities in call structure parameters for certain species. All bats modulate their calls according to the habitats they are navigating and their behaviour. This imposes limitations on reliable identification of bats to species level for species of the same genus, and specifically for *Plecotus*, *Myotis* and *Nyctalus* bats.

### Accurate Lifespan of Ecological Data

- 2.4.6 The majority of ecological data remains valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for one year, assuming no significant considerable changes to the site conditions.

# CAMBRIDGE NORTH BAT EMERGENCE SURVEY REPORT

Figure 2.1: Location of surveyors, IR cameras and Static Detector





## 3 RESULTS

### 3.1 Bat Emergence Surveys

- 3.1.1 Table 3.1 below summarises the number of bat contacts for each species of bat encountered during the emergence surveys.
- 3.1.2 Only one bat was directly observed during the surveys. This was a Soprano Pipistrelle *Pipistrellus pygmaeus* seen by Surveyor 1 at 21:58, flying high and straight over the site from the south-east. It was not observed using any of the habitat or features on the site at this time.

**Table 3.1: Summary of Building Emergence Survey Results May 2023**

Surveyor / Camera	Emergence Yes/No	Species recorded foraging/commuting
Surveyor 1 (S1) – south of B1	No	Common pipistrelle Soprano pipistrelle
Surveyor 2 (S2) – north of B1	No	Soprano pipistrelle
Infra-red camera 1 (IR1) – B1 northwest windows	Possible Common Pipistrelle emergence 2 <sup>nd</sup> May 2023 (single bat) but no confirmed evidence – see paragraph 3.1.6.	Common pipistrelle Soprano pipistrelle
Infra-red camera 2 (IR2) – north B1	No	Common pipistrelle Soprano pipistrelle

- 3.1.3 No bats were seen emerging from the building, either by surveyors or on either of the two infra-red cameras.
- 3.1.4 However, due to an early recording issue with the infra-red camera on the northwest side of the building, it is not possible to rule out that a single Common Pipistrelle *Pipistrellus pipistrellus* bat may have emerged from the north-west facing brick wall approximately 30 minutes after sunset. This bat was recorded by Surveyor 1 and the static detector left by Infra-red Camera 1 but was not seen by the surveyors. At this time, the infra-red camera was not recording. It is very possible that it was a passing bat rather than a bat emerging from the building. This will be investigated further on the second survey, later in May 2023 and will include further monitoring of this area of the building with an infra-red camera.
- 3.1.5 Levels of bat activity on all detectors was low, with only five to seven bat contacts on any of the detectors for the entire survey period. No other bats were seen during the survey, or recorded on the cameras, other than that one bat described in 3.1.2 above.

### 3.2 Static monitoring survey

- 3.2.1 Table 3.2 shows the total bat contacts for each species each survey at each of the static locations (Figure 2.1).
- 3.2.2 Five Common Pipistrelle contacts were recorded by the static detector for the duration of the survey (fifteen minutes before sunset to 90 minutes after sunset). These were all 30-45 minutes after sunset and three of the contacts were very close together at 21:11 and these are likely to be the same bat. No other bat species were recorded by the static equipment.

**Table 3.2: Number of bat contacts recorded during static monitoring (SR1)**

Date	COP	SOP	NAP	NOC	LEI	NYS	SER	BLE	MYO	Total
2/05/2023	5	0	0	0	0	0	0	0	0	5

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## 4 EVALUATION AND POTENTIAL IMPACTS

- 4.1.1 During the first survey, no bats were observed emerging from or returning to the building during the survey.
- 4.1.2 Two species of bats were recorded foraging or commuting in the area during this first emergence survey of B1. These were Common Pipistrelle and Soprano Pipistrelle.
- 4.1.3 The results of the first emergence survey indicate that bats are not currently using B1 for roosting. However, there is a possibility that a single Common Pipistrelle bat may have emerged from the west-facing brick wall approximately 30 minutes after sunset. This bat was recorded by two of the detectors but was not seen by the surveyors and the infra-red camera was not recording at this point in the survey. This will be investigated further on the second survey, later in May 2023 and will include monitoring of this area of the building with an infra-red camera.
- 4.1.4 If the second emergence survey finds no evidence of roosting bats, a Natural England licence will not be required. However, demolition should proceed under a Precautionary Working Method Statement, with inspection of the north rooms immediately before demolition.
- 4.1.5 Levels of bat activity, both around Building B1 and around the static detector in the adjacent woodland were very low during the first survey. Weather conditions were suitable for bats and the area was dark and undisturbed. The findings of this survey are consistent with those of the July 2022 surveys and indicate that the building and the surrounding habitat are not of high importance for bats for roosting or foraging.
- 4.1.6 Building 1 will be demolished as part of proposed works.
- 4.1.7 As Building 1 provides potential roosting opportunities, mitigation for the loss of these potential roost features is recommended (Section 5).

## 5 MITIGATION

### 5.1 Mitigation

#### Building 1

- 5.1.1 Building 1 had moderate potential for roosting bats. The first of the bat emergence surveys indicates that it is unlikely that bats are roosting in this building.
- 5.1.2 If the second survey also finds no evidence of roosting bats in B1, it will be considered that bats are currently not using the structure as a roost and therefore a Natural England licence will not be required in advance of refurbishment.
- 5.1.3 Demolition should proceed under a Precautionary Working Method Statement, with inspection of the north rooms immediately before demolition.
- 5.1.4 To compensate for the loss of potential roosting locations from the demolition of the building, **seven additional bat boxes** will be provided in and around Wild Park in suitable locations to be set out in the Landscape and Ecological Management Plan (LEMP) and agreed with Greater Cambridge Shared Planning.

#### Bat activity

- 5.1.5 Two species of bats were recorded during the first survey. These were Common Pipistrelle and Soprano Pipistrelle. Levels of bat activity during the survey were very low.
- 5.1.6 Bats are nocturnal and adapted to roost and forage in low light conditions, therefore increases in artificial lighting can cause disturbance or disrupt existing flight paths and roosting, even with more light tolerant bats such as Pipistrelle.
- 5.1.7 A sensitive lighting scheme will be developed to avoid disturbing foraging, commuting and roosting bats on / adjacent to site during construction and post development. Lighting will be designed to minimise light spillage on the new bat boxes and site boundaries, particularly the residential buildings and gardens along the northern boundary of the Site.
- 5.1.8 Design recommendations for wildlife friendly lighting are included in the Statement on the impact and design of artificial light on bats produced by BCT (2011). This list can be found in Appendix B.

### 5.2 Enhancement

- 5.2.1 The wider Cambridge North site will be enhanced for bats by the provision of green roofs (a source of invertebrate prey) and the use of native plant species for soft landscaping wherever practicable.

## 6 CONCLUSIONS

- 6.1 One of two emergence surveys of Building 1 was undertaken on 2<sup>nd</sup> May 2023. No bats were recorded emerging from the building. A Common Pipistrelle was recorded on two detectors, possibly in the vicinity of the building (the north-west facing aspect) towards the end of the window of time usually associated with Pipistrelle emergence. This will be further investigated on the second survey later in May.
- 6.2 If the second survey also finds no evidence of roosting bats in B1, it will be considered that bats are currently not using the structure as a roost and therefore no mitigation or a Natural England licence will be required in advance of demolition.
- 6.3 Demolition should proceed under a Precautionary Working Method Statement, with inspection of the north rooms immediately before demolition.
- 6.4 This report will be amended and reissued following the completion of the second survey, scheduled for 15<sup>th</sup> May 2023.
- 6.5 Two species of bats were recorded foraging or commuting on or over the site during the first emergence survey of B1. These were Common Pipistrelle and Soprano Pipistrelle. Levels of bat activity during the survey were very low.
- 6.6 A sensitive lighting scheme will be developed to avoid disturbing foraging, commuting and roosting bats on / adjacent to the wider Cambridge North site during and after construction. Lighting will be designed to minimise light spillage on the new bat boxes and site boundaries, particularly the residential buildings and gardens along the northern boundary.
- 6.7 The wider Cambridge North site will be enhanced for bats by the provision of green roofs and the use of native plant species for soft landscaping.

## REFERENCES

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# APPENDICES

## Appendix A

### Bat emergence survey results



**CAMBRIDGE NORTH BAT EMERGENCE SURVEY REPORT**

First survey results

02.05.23 dusk - B1

Surveyor / Camera Location	Species	Time of first call (minutes past sunset)	Total contacts	Details
S1	Soprano pipistrelle	20:57 (31)	1	Seen flying high over the site heading north-west
S2 & IR 2	Common pipistrelle	20:55 (30)	6	Not seen
	Soprano pipistrelle	20:58 (32)	1	Not seen
IR1	Common pipistrelle	20:55 (29)	4	Not seen
	Soprano pipistrelle	20:57 (31)	1	Not seen

Possible common pipistrelle emergence at 20:55 from windows of B1 – audio recording only, thus cannot be certain where the bat was and whether it emerged from the building or not

Second survey results

15.05.23 dusk - B1

Surveyor / Camera Location	Species	Time of first call (minutes past sunset)	Total contacts	Details
S1				
S2 & IR 2				
IR1				

## Impact and Design of Artificial Light for Bats

### Design recommendations for wildlife-friendly lighting include:

- Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
- Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
- Use narrow spectrum bulbs to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
- Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such as hoods, cowls, louvers and shields to direct the light.
- Reduce the height of lighting columns. Light at a low level reduces ecological impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare.
- For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level.
- Use embedded road lights to illuminate the roadway and light only high-risk stretches of roads, such as crossings and merges, allowing headlights to take up the slack at other times.
- Limit the times that lights are on to provide some dark periods for wildlife.
- Use lighting design computer programs and professional lighting designers to predict where light spill will occur.