



Bat Survey Report

305 Peppard Road, Emmer Green,
Reading, RG4 8TQ

Client	Martha Unia
Reference	2021-062
Version	1.1
Date	01/09/2021

Quality Assurance

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Document History

Version	Date	Revision
1	18/08/2021	Issued to the client.
1.1	01/09/2021	Updated to include plan showing surveyor positions.

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The evidence in this document is based upon the field survey(s) detailed. Due to the changing nature of ecology the list of species present cannot be considered comprehensive and Smart Ecology cannot guarantee that other protected/notable species and habitats are not present.

The ecology of a site is constantly changing and therefore the information provided in this document is only relevant at the time of survey. If it has been over 12 months since this survey was undertaken advice should be sought on whether an updated survey is necessary.

The evidence which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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Non-Technical Summary

Purpose of Report	Smart Ecology was commissioned by Martha Unia to undertake a bat emergence survey of a residential dwelling and garage at 305 Peppard Road, Emmer Green, Reading, RG4 8TQ. This was to inform a planning application for the demolition of the buildings and the erection of a new dwelling and garage on the site (Planning Reference: 210321).
Methodology	One dusk emergence survey was carried out of the residential dwelling and garage to determine the presence or likely absence of roosting bats and to characterise any roosts found. The survey was carried out with reference to good practice guidelines.
Survey Results	Roosting Bats: No bats emerged from the residential dwelling or garage. Foraging and Commuting Bats: Passes by common pipistrelle, a Myotis species of bat, noctule, and soprano pipistrelle were recorded during the survey.
Impact Assessment	Roosting Bats: No bats emerged from the buildings and it is concluded that roosting bats are likely to be absent. Therefore, it is considered that the proposed development is unlikely to have an impact on bats. Foraging and Commuting Bats: The installation of additional artificial lights on the exterior of the proposed buildings or anywhere else on site could disturb commuting and foraging bats.
Required Actions	Roosting Bats: Although no bats were present at the time of the surveys, roosts may be used sporadically and so the possible presence of bats cannot be completely discounted. Therefore, a precautionary approach must be followed during works, details of which are provided in this report. <u>If bats are found at any time during works then works must immediately stop and a bat licensed ecologist contacted on 01453 807188.</u> Foraging and Commuting Bats: To avoid impacts on foraging and commuting bats artificial lighting should be kept to a minimum and warm-white (long wavelength, not UV) LED lights used, and motion sensors on short-duration timers and high motion threshold fitted.



Contents

	Non-Technical Summary.....	ii
1	Introduction	1
1.1	Background	1
1.2	Aims	1
2	Methodology.....	2
2.1	Personnel.....	2
2.2	Dusk Emergence Survey	2
2.3	Limitations	3
3	Results.....	4
4	Evaluation	5
4.1	Legislation and Planning Policy	5
4.2	Impact Assessment.....	6
5	Mitigation & Enhancements.....	7
5.1	Mitigation	7
5.2	Enhancements	7
6	References.....	8
7	Figures	9
	Figure 1 – Location Map	
	Figure 2 – Surveyor Positions Plan	
	Appendix - Sonogram Parameters	10



1 Introduction

1.1 Background

- 1.1.1 Smart Ecology was commissioned by Martha Unia to undertake a dusk bat emergence survey of a residential dwelling and garage at 305 Peppard Road, Emmer Green, Reading, RG4 8TQ (central grid reference SU 7222 7684). See Figure 1, Section 7 for a site location map.
- 1.1.2 A Preliminary Roost Assessment undertaken in July 2021 identified that the residential dwelling and garage had low suitability for roosting bats (Smart Ecology, 2021). No evidence of bat use was found.
- 1.1.3 In accordance with good practice guidelines (Collins, 2016) it was recommended that one dusk emergence or dawn re-entry survey was undertaken of the residential dwelling and garage to determine the presence or likely absence of roosting bats.
- 1.1.4 The purpose of the survey was to inform a planning application to Reading Borough Council for the demolition of the existing residential dwelling and garage and the erection of a new dwelling and garage on the site (Planning Reference: 210321).
- 1.1.5 This report has been prepared by Robert Dunn, director at Smart Ecology and an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with reference to the Bat Conservation Trusts (BCT) good practice guidelines (Collins, 2016), CIEEM's Guidelines for Ecological Report Writing (CIEEM, 2017), and BS42020 Biodiversity – a code of practice for planning and development (BSI, 2013).

1.2 Aims

- 1.2.1 The purpose of the survey and report was to:
 - Identify if bats were roosting within the residential dwelling or garage.
 - Identify the numbers and species of any bats present and characterise roosts.
 - Assess the impact of the proposed works on bats.
 - Provide details of any necessary mitigation and recommendations for enhancements.



2 Methodology

2.1 Personnel

- 2.1.1 The dusk emergence survey was led by Robert Dunn, with assistance from Alex Blundell, Ali Affleck, and Vikki Neville. Refer to Table 2-1 for details of the surveyor's experience and qualifications.

Table 2-1: Surveyor information

Surveyor	Natural England Bat Survey Licences	Qualifications and Experience
Robert Dunn BSc, MSc, ACIEEM	Level 1 (2016-23966)	Eight years' experience in ecological consultancy. MSc Environmental Biology: Conservation and Resource Management (University of Swansea - Merit). BSc Biological Sciences with Environmental Resources (University of Warwick – 1 st).
Alex Blundell BSc, MSc, Qualifying member of CIEEM	Level 1 (2018-33439)	MSc Applied Ecology (University of Gloucestershire). BSc Animal Behaviour & Welfare (Hartpury College). Experienced bat surveyor with over five years' experience of carrying out professional surveys.
Ali Affleck BSc, MSc, Qualifying member of CIEEM	-	Experienced bat surveyor trained by Smart Ecology. Ali has carried out professional bat surveys since 2019.
Vikki Neville BSc, MRes, PhD	-	PhD in Animal Behaviour (University of Bristol). MRes Animal Behaviour (University of Newcastle). BSc Animal Behaviour and Cognition (University of Exeter). Experienced bat surveyor trained by Smart Ecology. Vikki has carried out professional bat surveys since 2017.

2.2 Dusk Emergence Survey

- 2.2.1 One dusk emergence survey was carried out of the residential dwelling and garage with reference to good practice guidelines (Collins, 2016).
- 2.2.2 The survey commenced 15 minutes before sunset and continued for 1.5 hours after sunset. The survey date, timings, and weather conditions are provided in Table 2-2.



Table 2-2: Survey date, timings, and weather conditions

Date	Sunset Time	Start Time	Finish Time	Weather Conditions	
				Start	Finish
12/08/2021	20:33	20:18	22:03	Temp: 19.2°C Cloud Cover: 80% Beaufort scale: 3 Rain: None Humidity: 49%	Temp: 16.5°C Cloud Cover: 90% Beaufort scale: 2 Rain: None Humidity: 86%

- 2.2.3 Surveyors were positioned to ensure that all potential access points and roost features were viewed. Refer to Figure 2, Section 7 for a plan showing surveyor positions.
- 2.2.4 Bat activity was recorded using EM Touch and EM Touch 2 PRO detectors connected to iPhones and iPads. Information recorded during the survey included points of emergence (if any), species, number of bats, flight direction and behaviour (e.g. commuting, foraging). A bat pass was defined as a series of calls separated by more than one second from another call or series of calls.
- 2.2.5 Sonogram recordings were analysed using Kaleidoscope software to confirm species against reference measurements. The parameters used for analysis of calls are provided in the Appendix. Where possible bats were identified to species level. Bats within the genus *Myotis* are grouped together as it is difficult to accurately identify these bats to species level due to the overlap in call characteristics (Collins, 2016). In some habitats, particularly cluttered environments, the calls of common and soprano pipistrelle overlap and in this instance bats are recorded as *Pipistrellus* species, referring to common or soprano pipistrelle only. Additionally, the call characteristics of large bat species (noctule, Leisler's bat, and serotine) sometimes overlap, and where identification was unclear these are grouped. Any unclear sonograms are recorded as unknown bat species.

2.3 Limitations

- 2.3.1 There were no limitations to the survey. Bat foraging and commuting activity was recorded during the survey which showed that bats were active at the time of the survey.



3 Results

Dusk Emergence Survey (12/08/2021)

3.1.1 No bats emerged from the residential dwelling or garage.

3.1.2 Refer to Table 3-1 for a summary of bat foraging and commuting activity noted during the survey.

Table 3-1: Bat foraging and commuting activity summary

Species	Time of Earliest Pass	Minutes After Sunset	Average Emergence Time and Range ¹	General Observations
Common pipistrelle	21:26	53	24.8 minutes after sunset (average). 6.9 – 42.7 minutes after sunset (range).	Several ² passes were recorded during the survey, all of which were heard but not seen. No passes recorded within the known emergence time for this species,
Myotis species	21:40	67	16.4 minutes before sunset – 85 minutes after sunset (range for all Myotis species).	One pass was heard but not seen during the survey, by surveyors positioned to the east of the buildings. The pass was recorded within the known emergence time for this species, possibly indicative of the presence of a nearby roost.
Noctule	20:44	10	0.2 minutes before sunset – 7 minutes after sunset (average). 16 minutes before sunset – 31 minutes after sunset (range).	Several ² passes, both heard and seen and heard but not seen, were recorded during the survey. The earliest pass was of a bat passing high overhead, and was recorded within the known emergence time for this species, possibly indicative of the presence of a nearby roost.
Soprano pipistrelle	20:56	23	27 – 35 minutes after sunset (average). 12 – 55 minutes after sunset (range).	Several ² passes, both heard and seen and heard but not seen, were recorded during the survey. The earliest pass was of a bat commuting past the southern elevation of the residential building in a westerly direction, and was recorded within the known emergence time for this species, possibly indicative of the presence of a nearby roost.

¹Emergence time range based on data summarised in Andrews Ecology (2017).

²Few passes < 3, several passes 3– 10, many passes 10+.



4 Evaluation

4.1 Legislation and Planning Policy

- 4.1.1 All bat species and their roosts are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended); see Table 4-1 for details.

Table 4-1: Legal implications of legislation with regard to bats

Legislation	Legal Implications
Conservation of Habitats and Species Regulations 2017 (as amended)	It is illegal to: • Deliberately capture, injure or kill bats. • Deliberately disturb¹ bats. • Damage or destroy a breeding site or resting place².
Wildlife and Countryside Act 1981 (as amended) – sub-sections 9(4) b and c and 9(5) only	It is illegal to: • Intentionally or recklessly disturb bats while they are occupying a structure or place of shelter or protection². • Intentionally or recklessly obstruct access to a structure or place of shelter or protection².

¹ Disturbance under the Conservation of Habitats and Species Regulations 2017 (as amended) is defined as impairing the ability of an animal to survive, breed, reproduce, rear or nurture their young, hibernate or migrate, or to significantly affect the local distribution or abundance of the species.

² Bat roosts are any structure or place used for breeding, shelter or protection and are protected even when bats are not present.

- 4.1.2 A EPS licence is required if works affect bats or their roosts. EPS licences are issued by Natural England only after the following three tests have been satisfied:
- The proposed works must be for the purpose of preserving public health or safety or other imperative reasons of overriding public interest.
 - There is no satisfactory alternative to the proposed works.
 - The proposed works will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.
- 4.1.3 Additionally, barbastelle, Bechstein's bat, brown long-eared, greater horseshoe, lesser horseshoe, noctule, and soprano pipistrelle bats are designated as species of principal importance (priority species) under the Natural Environment and Rural Communities Act 2006. Section 40 of this Act places a duty on local planning authorities to 'have regard' to conserving these species when determining planning applications.
- 4.1.4 Paragraph 174 of the National Planning Policy Framework (NPPF) 2021 states that planning decisions should protect sites of biodiversity value, minimise biodiversity impacts, and contribute to net biodiversity gains. Paragraph 180 states that planning permission should be refused if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for. The NPPF also emphasises the need to protect priority species.



4.2 Impact Assessment

Roosting Bats

- 4.2.1 No bats emerged from the residential dwelling or garage outbuilding and it is concluded that roosting bats are likely to be absent. Therefore, it is considered that the proposed demolition of the buildings is unlikely to have an impact on roosting bats.

Foraging and Commuting Bats

- 4.2.2 Foraging and commuting passes by common pipistrelle, a Myotis species of bat, noctule, and soprano pipistrelle were recorded during the survey.
- 4.2.3 If additional external artificial lighting is installed on the site then there is potential for the disturbance of commuting and foraging bats.



5 Mitigation & Enhancements

5.1 Mitigation

Bat Roosts

- 5.1.1 Although no bats were identified to be roosting within the residential dwelling and garage at the time of the survey, roosts may be used sporadically and so the possible presence of bats cannot be completely discounted.
- 5.1.2 Therefore, a precautionary approach must be implemented during works to the buildings as follows:
- All contractors must wear gloves during works.
 - Roof tiles must be carefully removed by hand, lifting vertically upwards and not dragging the tile, and the undersides checked for bats.
 - All areas exposed must be carefully inspected for bats.
 - All contractors must be made aware of the potential for bats and should remain vigilant throughout the works.
- 5.1.3 It is the client's responsibility to make sure all contractors are aware of this required precautionary approach to works.
- 5.1.4 **If bats are found at any time during works then works must stop immediately and a bat licensed ecologist contacted on 01453 807188.**

Commuting and Foraging Bats

- 5.1.5 To avoid impacts on foraging and commuting bats it is recommended that additional external artificial lights are not installed on the exterior of the proposed buildings, or anywhere else on the site. If the use of external artificial lighting cannot be avoided then this should be kept to a minimum and warm-white (long wavelength, not UV) LED lights used, and motion sensors on short-duration timers and high motion threshold fitted (e.g. so that moths do not set them off).

5.2 Enhancements

- 5.2.1 In line with the NPPF and local planning policy, an opportunity to provide an enhancement for bats is detailed in Table 5-1.

Table 5.1: Opportunity for enhancements for bats

Opportunity	Details
Provision of bat boxes/tubes	One or more bat tubes/boxes could be installed in or on the external elevations of the proposed buildings. Ideally these should be integrated tubes/boxes which are built into the walls (e.g. 1FR Schwegler Bat Tube, Vivara Pro Build-in Woodstone Bat Tube, Ibstock Enclosed Bat Box). Additionally/alternatively bat boxes could be installed on external elevations (e.g. Low Profile WoodStone Bat Box, 2FE Schwegler Wall-Mounted Bat Shelter). Bat tubes/boxes must be installed at least 3 - 4 m above ground level, ideally on a southerly aspect/orientation (south, south-west and south-east), located away from windows and other artificial light sources, and with a clear flight path to and from the entrance.



6 References

Andrews Ecology (2017). *A Review of Empirical Data in Respect of Emergence and Return Times Reported for the UK's 17 Native Bat Species.* Andrews Ecology Ltd., Bridgwater.

British Standards Institute (BSI) (2013). BS4202 Biodiversity – A code of practice for planning and development. BSI, London.

Collins, J. (2016). *Bat Surveys for Professional Ecologists – Good Practice Guidelines*, 3rd edition. Bat Conservation Trust, London.

Russ, J. (2012). *British Bat Calls: A Guide to Species Identification.* Pelagic Publishing, Exeter.

Smart Ecology (2021). *Preliminary Roost Assessment*, 305 Peppard Road, Emmer Green, Reading, RG4 8TQ. Smart Ecology Ltd., Woolaston.



7 Figures

Figure 1 – Location Map

Figure 2 – Surveyor Positions Plan



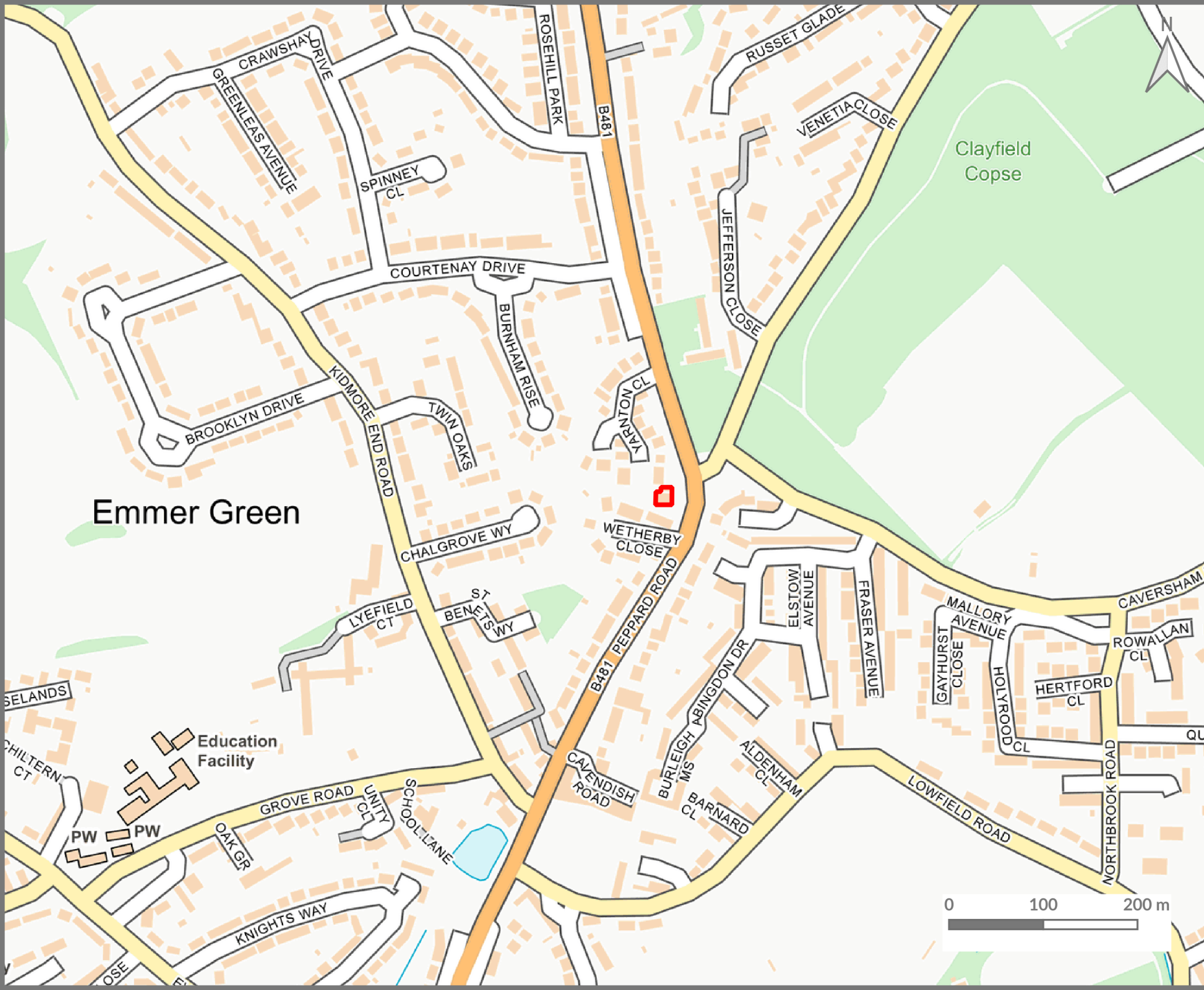


Figure 1 -
Site Location Map
305 Peppard Road
Emmer Green
Reading
RG4 8TQ

Site Boundary 

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Date:	06/07/2021
Drawn by:	Joseph Wilkie
Checked by:	Robert Dunn

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2021-062\GIS



**Figure 2 -
Surveyor Positions
Plan**

305 Peppard Road
Emmer Green
Reading
RG4 8TQ

Surveyor Positions ●

Surveyed Buildings ■

Map data ©2020 Google. Not to scale.

Date:	01/09/2021
Drawn by:	Robert Dunn
Checked by:	Rachel Barber

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Appendix - Sonogram Parameters

The peak frequency measurements used to differentiate between species are shown below. Where further analysis was required additional measurements (inter-pulse interval, call duration and minimum and maximum frequency) were also taken and compared to reference parameters cited in Russ (2012).

Species	Peak Frequency (kHz)		Notes
	Min	Max	
Pipistrellus species			
Common pipistrelle	≥42	<49	
Soprano pipistrelle	≥ 52	-	
Nathusius' pipistrelle	35	≤41	
Common/Soprano pipistrelle	≥49	<52	
Nathusius'/Common pipistrelle	>41	<42	
Large bat species			
Noctule	≥17	≤26	Some calls below 20 kHz
Leisler's bat	>20	≤51	All calls above 20 kHz.
Serotine	≥26	≤42	

