ecology

www.osecology.co.uk

Bat Survey

Sunday School, Rowrah

May 2021

Michael Froggatt

Client	Michael Froggatt
Project Name	Sunday School, Rowrah
Project Number	21001
Report Type	Bat Survey
Version	V1 (FINAL)

	Name	**Position**	**Date**
Report Originator	Becky White	Senior Ecologist	26th May 2021
Reviewed	Mandy Rackham	Senior Ecologist	28th May 2021

Contents

Tables

Summary

OS Ecology Ltd were commissioned by Michael Froggatt in January 2021 to undertake a daytime bat risk assessment of a single storey brick-built garden store and subsequently to undertake a single dusk emergence survey of the building. It is proposed to demolish the existing single-storey structure to allow the construction of a new two-storey garden store within the same footprint.

Summary Table	
Impacts on Designated Sites	No impacts on sites designated for bats are anticipated from the development.
Risk Assessment Findings	A small single storey building primarily of cut stone construction with a pitched roof covered with slate tiles. Gaps were noted under the ridge tiles and under some roofing tiles where they have lifted or slipped. Gaps were also noted around the timbers to which the guttering is attached as well as gaps in mortar and brickwork. The client noted that a bat roost was present within the residential property in the garden of which the building stands. Overall, the structure is considered to be of low suitability to roosting bats. Areas of grassland, woodland and hedgerows outside the site have the potential to provide suitable foraging and commuting opportunities as well as connectivity between the site and the local area.
Dusk Emergence Survey	Dusk emergence survey did not record any bats emerging from the building. A single common pipistrelle was noted as potentially having emerged from the adjacent residential property and individual common and soprano pipistrelle were recorded intermittently foraging and commuting the vicinity during the survey. No other species were recorded.
Nesting Birds	No evidence of use by nesting birds was recorded, but the property offers opportunities within the ceramic ventilation pipes.
Impact Assessment	• Low risk of causing disturbance or harm to roosting bats. • Loss of a small number of potential roost features through building demolition. • Potential harm and/or disturbance to nesting birds, should works be undertaken in the breeding bird season (March to August inclusive).
Recommendations	• External lighting that may affect the site's suitability for bats will be avoided. If required this will be limited to low level, avoiding use of high intensity security lighting. • Alternatives to timber treatments that are injurious to mammals will be sought and used on site (see http://www.jncc.gov.uk/pdf/batwork_manualpt4.pdf). • If works are undertaken during the nesting bird season (March to August inclusive), should evidence of nesting birds be recorded, works

	will cease until an appropriately experienced ecologist has been on site and confirmed active nests to be absent. • Prior to demolition, roof tiles and external timberwork will be removed by hand and with due care. • Should evidence of roosting bats be recorded (droppings or bats themselves), works will cease and an appropriately experienced ecologist contacted. • In order to compensate for the loss of the potential roost features and bird nesting opportunities currently present it is recommended that a bird box and a bat box are provided within the site.
Further Survey	No further survey is recommended at this time. Should works not proceed within 12 months of the date of this report, an updating bat survey should be undertaken.

1. Introduction

Site Location

1.1 The site is located in Rowrah, Cumbria at approximate central grid reference of NY 0569 1855. The site location is illustrated within figure 1 in the appendices.

Site Description

1.2 The site comprises a small single storey outbuilding, currently in use as a garden store. The building stands within the garden of a residential property known as the Sunday School.

Objectives of the Study

1.3 The objectives of this report are:

- To identify and describe any potential ecological receptors that may be present on site or within an identified zone of influence.
- To identify and assess whether proposals may impact on the identified receptors.
- To identify potential mitigation, compensation or enhancement measures if required.
- To identify and detail further surveys if required.

Development Proposals

1.4 It is proposed to demolish the existing single-storey structure to allow construction of a new two-storey garden store within the same footprint.

2. Methodology

Scope of Study

2.1 The site was surveyed to identify whether the following were present for legislative and planning purposes:

- Habitats of conservation value
- Priority Habitats
- Protected and Priority Species

2.2 The ecological characteristics of the site were reviewed to identify the scope of the assessment, with the zone of influence determined through professional judgement.

2.3 The survey area comprised the "site" defined within figure 2 (Appendix 3) and where access was available an approximate 50m buffer[1].

2.4 Access permitting, all potential bat roosting sites within the survey area were assessed.

Desk Study

2.5 Desk study was undertaken to assess the nature of the surrounding habitats and included:

- Assessment of aerial imagery and Ordnance Survey mapping.
- A search of the MAGIC website[2] for designated sites and European protected species within 2km of the survey area.
- Data searches submitted to the local Bat Group (if required).

Field Survey

Habitats/Protected Species

2.6 During the preliminary survey the site was checked for evidence of protected species and habitats were assessed for their potential to support such species. For this site, the development site comprises a built structure and as such the assessment focussed on the risk of bats being present within the structure.

[1] The survey buffer may be increased depending on the species present and their identified core sustenance zones.
[2] Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)

Bats (Initial Risk Assessment)

2.7 Survey effort has been based on the that provided by the Bat Conservation Trust Good Practice Survey Guidelines[3].

2.8 Structures and trees within the site were inspected[4], where access was available, for potential roosting features (PRFs) and to record any field signs, including bats, if present[5].

2.9 Assessment follows the Bat Conservation Trust Guidelines[6], which classifies the suitability (negligible, low, moderate or high) of the potential roosting, foraging and commuting habitats within the site. Full details of the classifications are provided within the table in Appendix 1.

2.10 Survey was undertaken by Mandy Rackham MCIEEM, an experienced bat surveyor who holds a Class 4 Natural England survey licence (2020-44857-CLS-CLS) with Zoe Dunnett QCIEEM.

2.11 The following equipment was utilised during survey:

- High power LED torch.
- Binoculars.
- Digital camera.

2.12 The survey was undertaken on the 5th January 2021 in the following weather conditions:

Table 1: Daytime Survey Conditions

Date	Temperature	Cloud Cover	Precipitation	Wind Conditions
5/1/2021	0°C	10%	Dry	F0-1

Bats (Dusk Emergence Survey)

2.13 The initial risk assessment identified the building to be of low suitability for use by roosting bats. Activity survey was therefore completed in line with the current guidance provided by the Bat Conservation Trust[7] for and comprised a single dusk emergence survey.

[3] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust
[4] It should be noted that assessment relates entirely on the structure or tree's suitability to support bats and or other protected species. Assessment must in no way be taken as an assessment of the structure's integrity or safety.
[5] If bats are recorded during appropriate measures are undertaken to limit any potential disturbance
[6] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust
[7] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

Table 2: Activity Survey Conditions							
Date	**Temperature (℃)**		**Cloud Cover (%)**	**Precipitation**	**Wind Conditions**	**Sunset/ Sunrise Time**	**Survey Period**
	Start	**End**					
27th May 2021	13	11	30	Dry	Still	21:32	21:17-23:02

2.14 Activity survey was undertaken in suitable weather conditions (no constant rain or high winds and sunset temperature of at least 10°C).

2.15 Surveyor locations are chosen to enclose the site to identify whether bats enter or leave the site.

2.16 Surveyors are placed where practicable to cover all potential entry/exits sites.

2.17 All surveyors are equipped with full spectrum detectors to enable high quality recordings to be taken and analysed following the survey, to allow for any potential surveyor error and to enable the cross referencing of calls.

2.18 Detectors enable the surveyors to listen to all activity during the survey.

2.19 Where required Infra-red cameras and lighting are used to provide more robust data.

2.20 The activity survey was undertaken by Becky White (2015-11462-CLS-CLS) assisted by Mike Perkins.

2.21 The following equipment was utilised during survey:

- Anabat Walkabout
- Anabat Scout
- Panasonic HC-VX870 Camera
- Infra-red Floodlights

Limitations to Survey

2.22 The loft area was inspected through an open access hatch, however a detailed inspection was not undertaken due to the structural instability of the structure and floor as noted by the client.

Analysis of Data

2.23 Following the survey, all bat calls are manually assessed and analysed using Analook Insight and or Bat Explorer software, enabling the full spectrum of the call to be assessed.

2.24 Where possible bat calls are identified to species, referencing call parameters as detailed within Russ (2012)[8], Middleton et al (2014)[9] and Barataud (2015)[10].

2.25 Bats are identified to species, where possible, though it is noted that there can be a significant overlap in call parameters in some species, particularly the *Myotis* genus.

2.26 *Myotis* bat calls are assessed using a range of indicators, though due their modulated calls a number of external factors can impact the reliability. As such *Myotis* bats will often be identified as *Myotis* sp. where identification to species cannot be confirmed.

2.27 Where possible further detail on the *Myotis* species will be gathered, such as DNA. The use of full spectrum detectors gives a greater success rate in identification. This can also be backed up by computer programmes such as Bat Classify.

2.28 Although a greater certainty can be provided in other species, there is still an overlap in calls between other genera of bats such as *Pipistrellus* and *Nyctalus,* which can be affected by a range of environmental factors. The following table details the parameters utilised by OS Ecology Ltd and are based on "typical" open flight calls.

Table 3: Bat Species Identification Parameters

Species	**Peak Frequency Range (KHz)[8]**
Pipistrellus	
Common pipistrelle	>42 and <49
Soprano pipistrelle	≥51
Nathusius' pipistrelle	<39
Common or soprano pipistrelle ('50KHz pip')	≥49 and <51
Common or Nathusius' pipistrelle ('40KHz pip')	≥40 and ≤42
Nyctalus	
Noctule	≥17 and <23.5
Leisler's	≥23.5 and <29.9
Eptesicus	
Serotine	≥24.1 and <32.2
Plectocus	
Brown Long-eared Bat	≥25.5 and <42.1
Barbastellus	
Barbastelle	≥29.2 and <44.7
Rhinolophus	
Greater Horseshoe	77-84
Lesser Horseshoe	107-114

2.29 Where there is uncertainty in species identification species are identified to genus.

[8] Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing
[9] Middleton, N., Froud, A. and French, K. (2014) Social Calls of the Bats of Britain and Ireland. Pelagic Publishing
[10] Barataud, M. (2015) Acoustic Ecology of European Bats – Species Identification, Study of their Habitats and Foraging Behaviour

Assessment Methodology

2.30 Guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) is utilised to provide habitat valuations.

2.31 The level of value of specific ecological receptors is assigned using a geographic frame of reference. For, example international value being most important (SACs, SPAs and pSPAs), then national (SSSIs), regional, county (LWS), district (LNR), local and lastly, within the immediate zone of influence of the site only (low).

2.32 In terms of species, for example breeding birds, should the population within the site constitute greater than 1% of the geographic population, it would be considered significant at that level. In addition, presence of designated sites, scarce species and or quality[11]/diversity of habitats are used to guide that valuation

2.33 Assessment methods for bats have been undertaken with reference to Wray et al. (2007)[12], which correlates with the geographic frame of reference. Within which they define the relative rarity of each species based on the known distribution[13] at the time and the value of the roost type, assuming that roosts such as feeding perches are of lower value that maternity roosts or sites that have a high level of fidelity.

[11] Quality can be subjective and vary in different geographic areas. Reasoned professional judgement is therefore used to inform the assessment.
[12] Wray et al (2007) Valuing Bats in Ecological Impact Assessment. In Practice. Based on a presentation at the Mammal Society – Specific Issues with Bats
[13] It should be noted that there are regular changes to our understanding of distribution as further studies are undertaken.

3. Results

Desk Study

Designated Sites

3.1 A search of the Multi Agency Geographic Information for the Countryside (MAGIC) Website[14] indicated that there is a single National Nature Reserve and a single Site of Special Scientific Interest present within 2km of the development site.

Table 4: Designated Sites

Designation	Site Name	Reason for Designation	Distance from Survey Area (Closest point)
NNR	High Leys	This reserve is an important remnant of a species rich meadow habitat. It supports a rich and diverse range of plants and invertebrate species. The reserve management has remained unchanged since the 1940s which has preserved the flower-rich grassland.	500m south east
SSSI	High Leys		500m south east
SSSI Impact Risk Zone (IRZ) The site is located within an identified SSSI Impact Risk Zone for the above site, however the small scale and nature of the works proposed do not fall into the identified risk categories.			

European Protected Species Licensing

3.2 A check of the MAGIC website identified no Natural England mitigation licences for bats have been granted with 2km.

General Land Use

3.3 A review of aerial imagery and Ordnance Survey mapping highlighted that the general land use in the surrounding area is dominated by arable fields with some woodland to the south. The site lies within the small rural village of Rowrah.

[14] Multi Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk (Accessed January 2021)

Data Search

Local Bat Group

3.4 Due to the small scale of the site a data search from the Cumbrian Bat Group has not been commissioned.

Field Survey

Protected Species

Bats

3.5 The results of the bat risk assessment of the structure is provided below:

Table 5: Bat Risk Assessment

Overview of Roosting Opportunities

A small single storey building primarily of cut stone construction with a pitched roof covered with slate tiles. Gaps were noted under the ridge tiles and under some roofing tiles where they have lifted or slipped. Gaps were also noted around the timbers to which the guttering is attached as well as gaps in mortar and brickwork. The client noted that a bat roost was present within the residential property within the garden of which the building stands. Overall, the structure is considered to be of low suitability to roosting bats. Areas of grassland, woodland and hedgerows outside the site have the potential to provide suitable foraging and commuting opportunities as well as connectivity between the site and the local area.

External

- Single storey stone-built garden store. Large cracks in stonework and the northern aspect is at risk of collapse as noted by the client.
- Pitched roof with slate tiles. Some of which are lifted or slipped creating gaps under the tiles. The ridge tiles also have gaps between the ridge tiles themselves and missing mortar.
- There are gaps in the mortar at the apex on the gable ends and some gaps in the mortar throughout, particularly at the corners and on the northern aspect and at the wall tops.
- There is a small timber hatch style window on the western aspect. The timber is in poor condition with weather damage noted.
- The timber doors are in good condition and are well sealed.
- The metal guttering is fixed to timber batons with gaps between the timber and the wall tops noted.
- Ceramic ventilation pipes are built into the walls at the gable ends provide potential access and egress points.

Internal

- The building is currently used for storage.

- The roof is supported by timber rafters which are in good condition.
- There are gaps between the timber door and timber frame.
- An internal brick divide separates the building into two compartments.
- The roof is unlined, and a small number of items were being stored within the void at the time of the survey.
- The stonework and mortar is in overall poor condition with a large crack spanning the length of the wall. Elsewhere and within the loft void daylight was visible through the holes / cracks in the walls as well as along the wall tops.
- No field signs for bats were observed internally or externally. A single mouse dropping was recorded.

Local Foraging Habitats

There are foraging opportunities associated with the neighbouring gardens and fields in the immediate surroundings of the property. Within the local area the hedgerows and woodland to the south have the potential to provide higher quality foraging habitat. There is also a large waterbody approximately 350m south east which has the potential to provide additional foraging opportunities.

Commuting Routes

A network of hedgerows to the north of the building, and scattered street trees have the potential to provide commuting opportunities within the local area.

Activity Survey

3.6 No bats were recorded to emerge from the building during the dusk emergence survey. A single common pipistrelle was identified as potentially having emerged from the adjacent residential property approximately 30 minutes after sunset. Individual common

and soprano pipistrelle were then recorded intermittently in the vicinity of the site for the remainder of the survey. No other species were recorded.

3.7 Full details are provided within Appendix 3.

Additional Species Groups

Birds

3.8 No evidence of nesting birds was recorded; however the structure has the potential to provide suitable opportunities.

Other Protected Species

3.9 It is considered that other protected species are likely to be absent from the site.

4. Site Assessment

Assessment of Survey Findings

Bats

4.1 The structure on site offers potential roosting locations associated with lifted and slipped tiles, gaps in mortar and stonework and gaps between the timber batons and wall tops.

4.2 Foraging and commuting opportunities within the immediate surroundings are limited however higher quality opportunities are present within the wider area.

4.3 Overall, the structure is considered to be of low suitability to roosting bats. No evidence of a maternity roost was noted during the surveys. The potential for the structure to be used during the hibernation period cannot be ruled out.

4.4 Dusk emergence survey completed in May 2021 did not record any bats emerging from the structure. A potential roost was identified within the adjacent residential property with a single common pipistrelle recorded as likely to have emerged from the building. The residential property will not be affected by the proposed works.

Nesting Birds

4.5 The site provides opportunities for nesting birds, although no evidence was recorded during the survey.

Other Protected Species

4.6 Other protected species are considered likely absent.

Designated Sites

4.7 The site is found within an identified SSSI Impact Risk Zone, however the nature and scale of the proposals do not fall into any of the identified risk categories.

5. Impacts

5.1 The following impacts are based on the understanding that the Client wishes to undertake the following:

- Demolition of the current single-storey garden store followed by a construction of a two-storey garden store with roof lights.

5.2 As a result of the assessment completed and the nature of the proposed works, the likely impacts, without appropriate avoidance measures, mitigation and/or compensation scheme, are:

- Low risk of causing disturbance or harm to roosting bats.
- Loss of a small number of potential roost features through building demolition.
- Potential harm and/or disturbance to nesting birds, should works be undertaken in the breeding bird season (March to August inclusive).

6. Recommendations

Further Survey

6.1 Based on the nature of the site and the proposed works, no further survey work for protected species or habitats are considered necessary for this site.

6.2 However, should works not proceed within 12 months of the date of this report, an updating bat survey should be undertaken.

Avoidance Measures

6.3 The following measures should be incorporated into the design of the scheme to avoid impacts on wildlife:

- External lighting that may affect the site's suitability for bats will be avoided. If required this will be limited to low level, avoiding use of high intensity security lighting.
- Alternatives to timber treatments that are injurious to mammals will be sought and used on site (see http://www.jncc.gov.uk/pdf/batwork_manualpt4.pdf).
- If works are undertaken during the nesting bird season (March to August inclusive), should evidence of nesting birds be recorded, works will cease until an appropriately experienced ecologist has been on site and confirmed active nests to be absent.

Mitigation Strategy

6.4 In order to address the residual risk that bats may be present at the time of works, the following precautionary working methods will be employed:

- Prior to demolition, roof tiles and external timberwork will be removed by hand and with due care.
- Should evidence of roosting bats be recorded (droppings or bats themselves), works will cease and an appropriately experienced ecologist contacted.

Compensation Scheme

6.5 In order to compensate for the loss of the potential roost features and bird nesting opportunities currently present it is recommended that a bird box and a bat box are provided within the site.

Appendix 1 – Bat Suitability and Survey Effort

Classifications of suitability are based on those provided within the Bat Conservation Trust Good Practice Survey Guidelines[15], with the table below taken from page 35 of the guidelines (table 4.1).

Table 6: 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)

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 and 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, protection, appropriate conditions[a] 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[b]. A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential[c].	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but isolated, i.e not very well connected to 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[a] 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[a] 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, streams, 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 watercourse and grazed parkland.

[15] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

		Site is close to and connected to known roosts.

a. For example in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
b. Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of potential for larger numbers of this species to be present during the autumn and winter in larger buildings in highly urbanised environments.
c. The system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015)

The classification of the suitability relates to the level of further survey recommended.

Table 7: Survey effort and timing depending on suitability of the structure or tree (Tables 7.1-7.3 in the BCT Guidelines

	Low roost suitability	**Moderate roost suitability**	**High roost suitability**
Survey Effort	One survey visit One dusk emergence or dawn re-entry survey	Two separate visits One dusk emergence and a separate dawn re-entry survey	Three separate visits At least one dusk emergence and a separate dawn re-entry survey. The third can be either dusk or dawn.
Timings	May-August (structures) No further survey (trees)	May to September. At least one must be in the optimum period (May to August)	May to September. two must be in the optimum period (May to August)
If bats are recorded	If bats emerge during surveys, the survey schedule will be adjusted to increase the survey effort so that enough information can be collected to characterise the roost and provide data should a Natural England Licence be required.		

Appendix 2 – Policy and Legislation

Planning Policy

National Planning Policy Framework (NPPF)[16]

The revised National Planning Policy Framework sets out the government's planning policies for England and how these are expected to be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. Planning law requires that applications for planning permission be determined in accordance with the development plan. The key paragraphs from the relating to the natural environment are detailed below:

Table 8: Ecologically Relevant Paragraphs of the NPPF

Paragraph	Statement
170	Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
171	Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[17]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.
172	Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads[18]. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major

[16] NPPF February 2019 (https://www.gov.uk/government/publications/national-planning-policy-framework--2)
[17] Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.
[18] English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

Table 8: Ecologically Relevant Paragraphs of the NPPF	
Paragraph	**Statement**
	development[19] other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
173	Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.
174	To protect and enhance biodiversity and geodiversity, plans should: a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity[20]; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation[21]; and promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
175	When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), b) adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; c) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; d) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[22] and a suitable compensation strategy exists; and development whose primary objective is to conserve or enhance biodiversity should be

[19] For the purposes of paragraphs 172 and 173, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.
[20] Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.
[21] Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.
[22] For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

Table 8: Ecologically Relevant Paragraphs of the NPPF	
Paragraph	**Statement**
	supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.
176	The following should be given the same protection as habitats sites: a) potential Special Protection Areas and possible Special Areas of Conservation; *b)* listed or proposed Ramsar sites[23]; and sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.
177	The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation[24] (England only)

This Circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England.

Part IV - Conservation of Species protected by Law details that the presence of a protected species is a material consideration when considering a development proposal that may result in harm to the species or its habitat and that planning authorities must have regard to species protected under the Habitat Regulations.

It goes on to say 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. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted.*

Natural Environment and Rural Communities (NERC) Act 2006[25] [26]

Section 40 – To conserve biodiversity

Section 40 puts a duty on public authorities to conserve biodiversity when undertaking its duties and functions,

[23] Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.
[24]ODPM Circular 06/2005 Office of the Deputy Prime Minister Eland House, Bressenden Place, London SWIE 5DU Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System
[25] https://www.legislation.gov.uk/ukpga/2006/16/section/40
[26] https://www.legislation.gov.uk/ukpga/2006/16/section/41

Section 41 – Biodiversity list and Action

Section 41 – Requires the Secretary of State *to publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity*. They must also *take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section or promote the taking by others of such steps*.

The 2007 lists were superseded by the UK Post-2010 Biodiversity Framework.

Table 9: UK Priority Habitats (excl. marine habitats)[27]	
UK BAP broad habitat	**UK BAP priority habitat**
Rivers and Streams	Rivers
Standing Open Waters and Canals	Oligotrophic and Dystrophic Lakes
	Ponds
	Mesotrophic Lakes
	Eutrophic Standing Waters
	Aquifer Fed Naturally Fluctuating Water Bodies
Arable and Horticultural	Arable Field Margins
Boundary and Linear Features	Hedgerows
Broadleaved, Mixed and Yew Woodland	Traditional Orchards
	Wood-Pasture and Parkland
	Upland Oakwood
	Lowland Beech and Yew Woodland
	Upland Mixed Ashwoods
	Wet Woodland
	Lowland Mixed Deciduous Woodland
	Upland Birchwoods
Coniferous Woodland	Native Pine Woodlands
Acid Grassland	Lowland Dry Acid Grassland
Calcareous Grassland	Lowland Calcareous Grassland
	Upland Calcareous Grassland
Neutral Grassland	Lowland Meadows
	Upland Hay Meadows
Improved Grassland	Coastal and Floodplain Grazing Marsh
Dwarf Shrub Heath	Lowland Heathland
	Upland Heathland
Fen, Marsh and Swamp	Upland Flushes, Fens and Swamps
	Purple Moor Grass and Rush Pastures

[27] http://jncc.defra.gov.uk/page-5706

	Lowland Fens
	Reedbeds
Bogs	Lowland Raised Bog
	Blanket Bog
Montane Habitats	Mountain Heaths and Willow Scrub
Inland Rock	Inland Rock Outcrop and Scree Habitats
	Calaminarian Grasslands
	Open Mosaic Habitats on Previously Developed Land
	Limestone Pavements
Supralittoral Rock	Maritime Cliff and Slopes
Supralittoral Sediment	Coastal Vegetated Shingle
	Machair
	Coastal Sand Dunes

Protected Species Legislation

European Protected Species

European Protected Species (EPS) are species of plants and animals (other than birds) protected by law throughout the European Union. They are listed in Annexes II and IV of the European Habitats Directive and receive full protection under The Conservation of Species and Habitats Regulations 2017 (as amended). This make it an offence to:

- deliberately capture, injure or kill any European Protected Species (EPS)
- to deliberately disturb any European Protected Species (EPS);
- to damage or destroy a breeding site or place of rest or shelter used by any European Protected Species (EPS).

The Wildlife and Countryside Act 1981 (as amended) adds further protection by making it an offence to intentionally or recklessly[28] disturb an EPS while it is occupying a structure or place which it uses for shelter or protection, or to obstruct access to any structure or place the species uses for shelter or protection.

[28] Under the Countryside and Rights of Way Act 2000 (CROW Act) extended the protection to cover reckless damage or disturbance

Table 10: European Protected Species relevant to the UK			
Animals		**Plants**	
All bat species	Great Crested Newt	Shore dock	Creeping marshwort
Large blue butterfly	Otter	Killarney fern	Slender naiad
Wild cat	Smooth snake	Early gentian	Fen Orchid
Dolphins, porpoises and whales (all species)	Sturgeon fish	Lady's slipper	Floating-leaved water plantain
Dormouse	Natterjack toad	Yellow marsh saxifrage	
Sand lizard	Pool Frog		
Fisher's Estuarine Moth	Snail, Lesser Whirlpool Ram's-horn		
Marine turtles			

Other Protected Species

Table 11: Other Protected Species		
Species	**Legislation**	**Level of Protection**
Birds	Wildlife and Countryside Act 1981 (as amended)	Under the Wildlife and Countryside Act (1981) it is an offence if any person: • intentionally kills, injures or takes any wild bird • intentionally takes, damages or destroys the nest of any wild bird whilst that nest is in use of being built; • intentionally takes, damages or destroys eggs of any wild bird; Wild birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are protected from: • intentional or reckless disturbance whilst it is building a nest or is in, on or near a nest containing eggs or young; • disturbance of dependent young

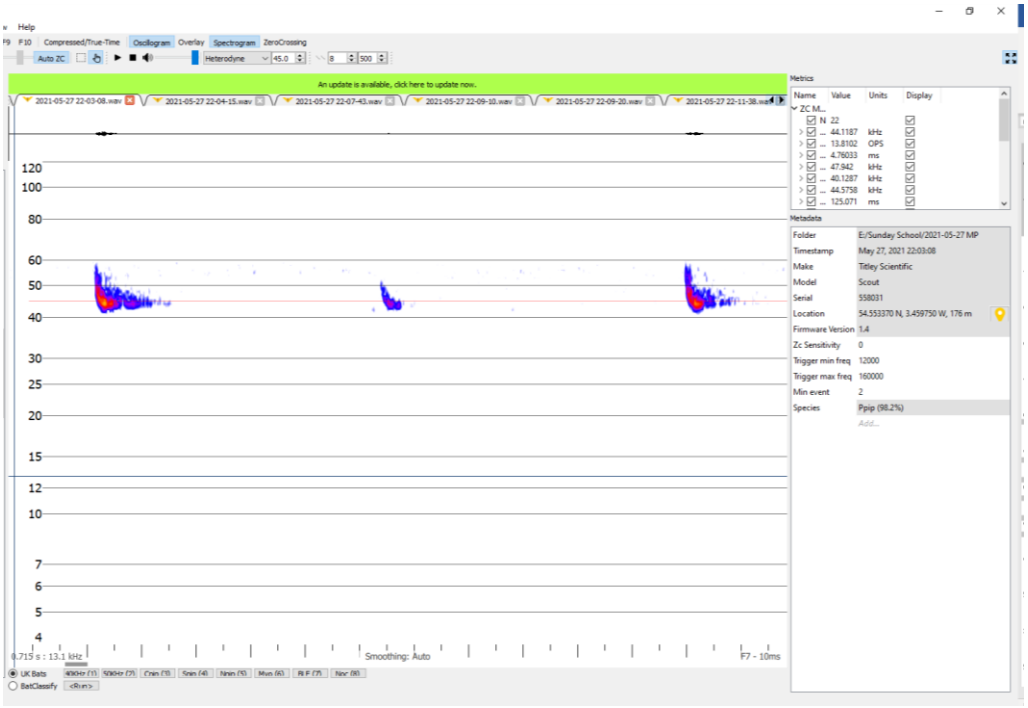
Appendix 3 – Raw Data

Date	27th May 2021	**Sunset**	21:32
Start Time	21:17	**End Time**	23:02

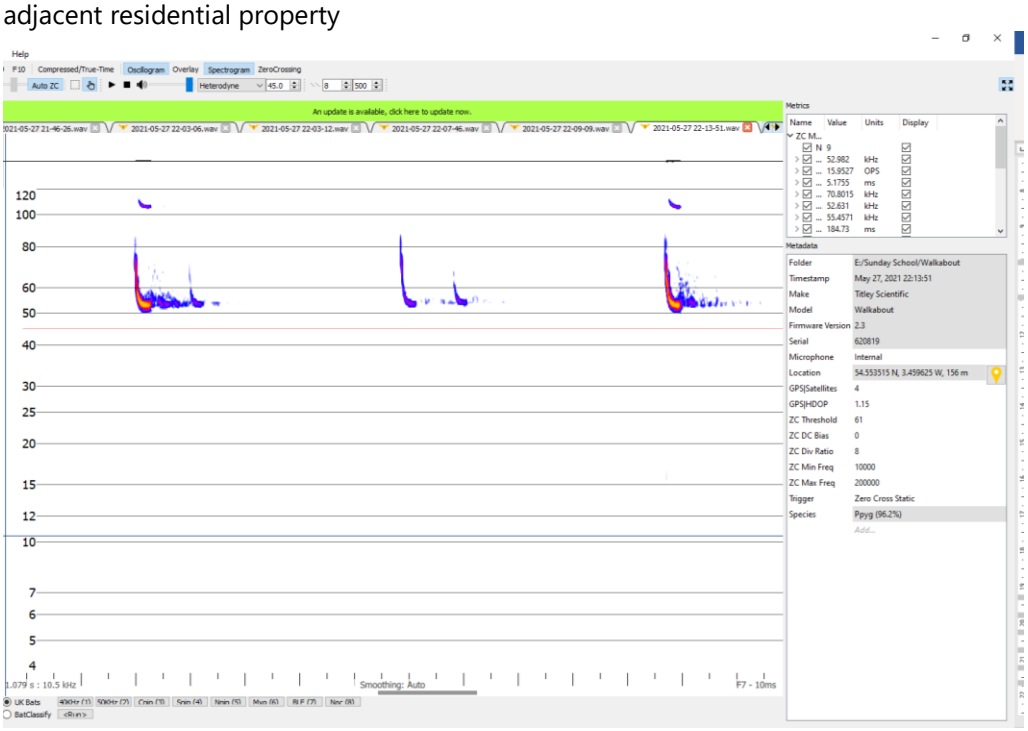
Time	**Surveyor 1** **Becky White**	**Surveyor 2** **Mike Perkins**
21:15		
21:20		
21:25		
21:30		
21:35		
21:40		
21:45		
21:50		
21:55		
22:00	22:03:06 45 HNS	22:03:08 45 Pos. emergence from adjacent house
22:05	22:07:46 55 HNS 22:09:09 45 HNS	22:07:43 55 HNS 22:09:10 45 HNS
22:10	22:11:37 45 HNS 22:13:51 55 HNS	22:11:38 45 HNS 22:13:53 55 HNS
22:15	22:18:01 45 HNS 22:18:22 45 HNS	22:18:01 45 Commuting
22:20		22:22:39 45 HNS
22:25		
22:30		
22:35	22:36:36 45 HNS	22:36:38 45 HNS
22:40		
22:45		
22:50	22:50:46 45 HNS 22:52:39 45 HNS	22:50:41 45 HNS 22:52:37 45 HNS 22:54:02 45 HNS
22:55		
23:00		

	Flight Activity	Species	
	Potential Emergence	39 = Nathusius' pipistrelle	*Myo* = Myotis sp.
	Confirmed Emergence	45 = Common pipistrelle	55 = Soprano pipistrelle
HNS	Heard Not Seen	50 pip = Common/Soprano pipi	BLE = Brown long-eared bat
SNH	Seen Not Heard	Noc = Noctule	

Example Full Spectrum Recordings



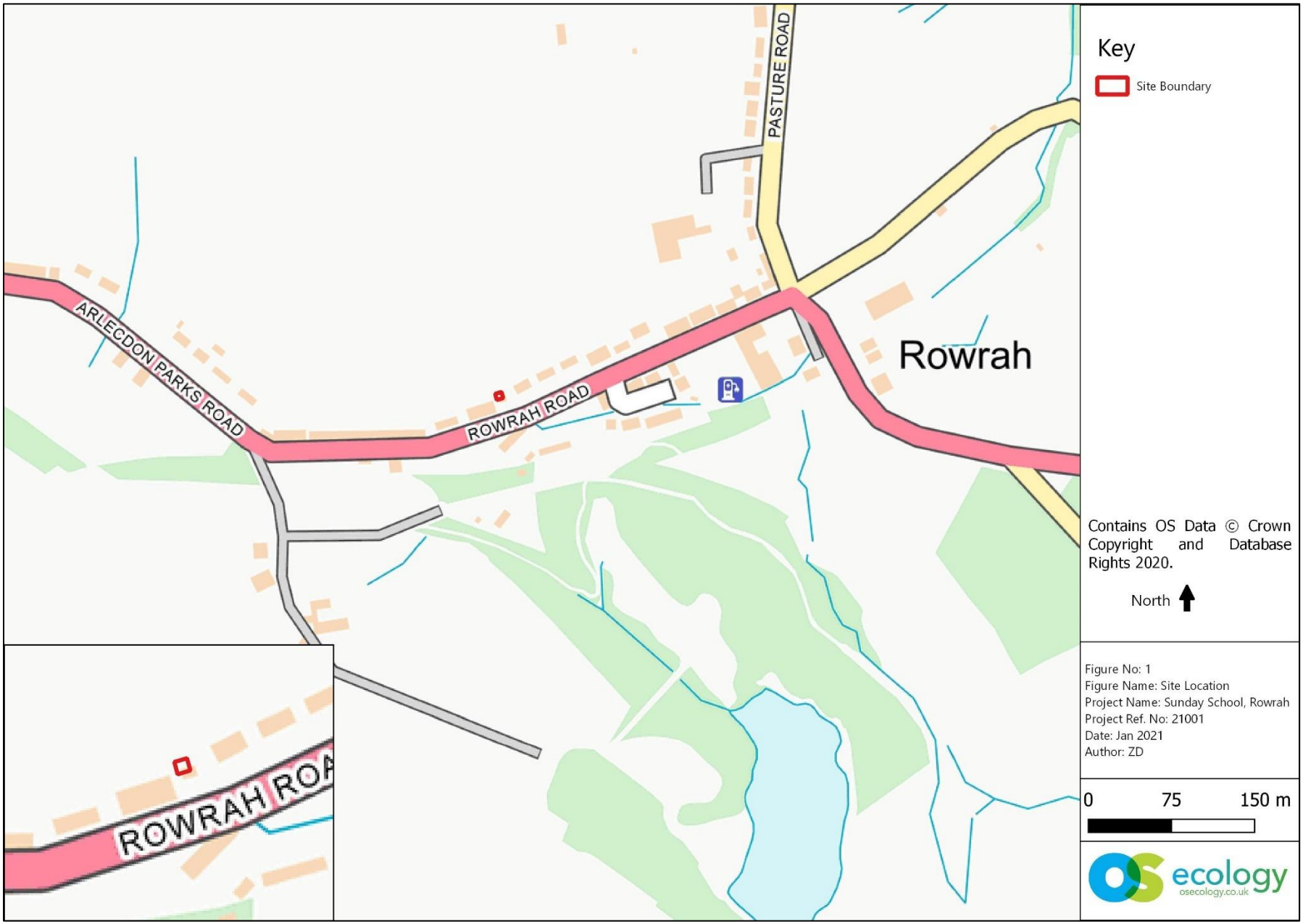
Common pipistrelle recorded by Surveyor 2 at 22:03:08 – Possible emergence from adjacent residential property



Soprano pipistrelle recorded by Surveyor 1 at 22:18:22

Screenshot from Infra-Red Camera – Northern and Eastern Elevations (22:55:00)

Appendix 4 – Figures


Key
Site Boundary
PASTURE ROAD
ARLECDON PARKS ROAD
ROWRAH ROAD
Rowrah
ROWRAH ROA
Contains OS Data © Crown Copyright and Database Rights 2020.
North
Figure No: 1
Figure Name: Site Location
Project Name: Sunday School, Rowrah
Project Ref. No: 21001
Date: Jan 2021
Author: ZD
0
75
150 m


Key
Site Boundary
Reproduced under licence from Google Earth pro.
North
Figure No: 2
Figure Name: Survey Area
Project Name: Sunday School, Rowrah
Project Ref. No: 21001
Date: Jan 2021
Author: ZD
0
4
8 m

Key

Commuting

Common Pipistrelle

Possible Roost Emergence

Common Pipistrelle

Surveyor Location

Building Under Survey

North

Figure No: 03
Figure Name: Dusk Emergence Survey Results 27th May 2021
Project Name: Sundery School, Rowrah
Project Ref. No: 21001
Date: 28th May 2021
Author: RJW

0 1.5 3 (m)