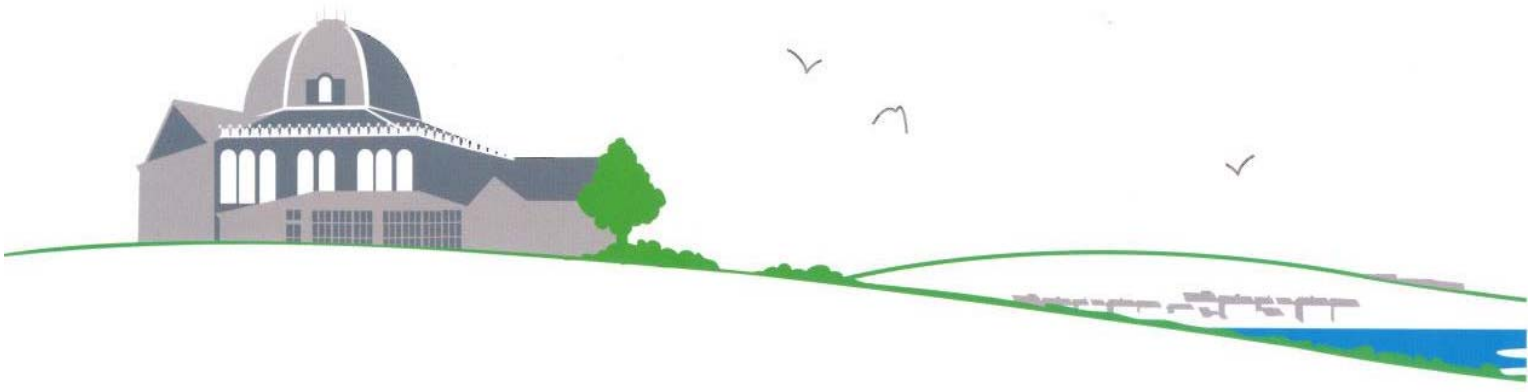
Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

TRUSTEES OF HAMMOND GROUND

LAND OFF GEORGE LANE, READ

BAT SURVEY REPORT



TRUSTEES OF HAMMOND GROUND

LAND OFF GEORGE LANE, READ

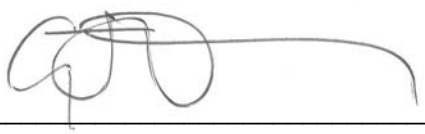
BAT SURVEY REPORT

Penny Anderson Associates Limited
'Park Lea'
60 Park Road
Buxton
Derbyshire
SK17 6SN

Project Manager and Author
Gerard Hawley BA (Hons), MSc, DipPSE (Dist), MCIEEM

September 2019

This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: 

CONTENTS

TABLES

FIGURE

APPENDIX

1. INTRODUCTION

Background

1.1 Penny Anderson Associates Ltd (PAA) was commissioned by trustees of Hammond Ground to carry out a survey to investigate presence/likely absence of roosting bats at a site off George Lane, Read, Lancashire (referred to as the 'site). There are proposals for a small residential development.

1.2 There are a number of mature pedunculate oak (*Quercus robur*), horse chestnut (*Aesculus hippocastanum*) and hornbeam (*Carpinus betulus*) trees that were inspected for bat roosts potential as part of a Phase 1 Habitat survey (PAA 2019) carried out in August 2019.

1.3 One of the oak trees T2 was assessed as having moderate bat roosting potential with a rot site at the end of a branch (Appendix Photos 1 and 2). Furthermore, the surrounding habitat of grazed grassland with scattered trees, nearby woodland areas and linked residential gardens provided Moderate foraging/commuting habitat (Photo 3). In keeping with best practice guidance, two emergence surveys of the tree were recommended.

1.4 As an element of the Phase 1 survey, data records for protected species held by the Lancashire Environment Record Network (LERN), which is the local environmental record centre for the county of Lancashire, were requested. These returned records of a number of bat species within a 2km search area that included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule bat (*Nyctalus noctule*), brown long-eared bat (*Plecotus auritus*) and single records for Nathusius's pipistrelle (*Pipistrellus nathusii*) and Serotine bat (*Eptesicus serotinus*).

1.5 This report details the results of two emergence surveys undertaken to assess the site's status for bats.

Site Description

1.6 The site lies at the north-western edge of a small residential area with interconnecting gardens, many containing trees. The surrounding landscape is agricultural grassland with scattered trees and areas of woodland. The site fronts on to George Lane, separated by a low stone wall and margin of vegetation. A residential garden with a number of standard trees and short section of conifer hedgerow abuts the site boundary to the south. There are no built structures within the site.

Bat Biology

1.7 There are 17 species of native bats known to be resident (i.e. breed) in the British Isles. British bats feed entirely on insects and have developed a complex sonar system, known as echolocation, which enables them to find prey and navigate around their environment at night.

1.8 Habitat requirements vary widely, both on an individual and species level, although certain features, such as woodland, parkland, traditional pasture, marshes and areas of freshwater, are often focal points for foraging, as insects are plentiful in these areas (Mitchell-Jones 2004). Bats use linear features such as rivers, hedgerows, roads and woodland edges as landmarks in order to commute from one location to another (Schofield and Mitchell-Jones 2003).

1.9 Bats utilise different roosts at different times of the year. Between late October and March, bats hibernate; this requires an unexposed roost with a stable temperature, typically a cave, cellar or tunnel. Around March, the bats emerge and gradually move to their summer roosts, typically within man-made structures or suitable crevices in trees. During the spring and summer period female bats gather together at maternity roosts to give birth and rear their young. Most births

occur between late June and mid-July, with the young able to fly within three to five weeks (Altringham 2003; Waters and Warren 2003). By the end of August, most of the young bats are independent and the colony begins to break up (Schofield and Mitchell-Jones 2003). Mating takes place between August and December, either at the winter hibernation site or at autumn breeding sites. The numbers of bats utilising these roosts can vary from single bats to hundreds of bats in a nursery colony or hibernation site (Altringham 2003).

1.10 Bats play an important role in many environments around the world, including pollination and insect control. In the UK, bats can tell us a lot about the state of the environment because they are top predators of common nocturnal insects and are extremely sensitive to changes in their surroundings, e.g. climate, landscape, agricultural intensification, development and habitat fragmentation. Populations of British bats have suffered severe declines in the past century, influenced by these factors.

Legislative Context

1.11 All wild species of bat are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by later legislation, including the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017, and this legislation is applicable to England and Wales. Bats are listed on Schedule 5 of the WCA and are therefore subject to some the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection (S9:4b).
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat (S9:4c).

1.12 There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.

1.13 Bat species are also listed under Annexes IIa and IVa of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017.

1.14 The Conservation of Habitats and Species Regulations 2017 state that a person commits an offence if they:

(a) deliberately capture, injure or kill any wild animal of a European protected species,

(b) deliberately disturb wild animals of any such species, in such a way as –

(i) to impair their ability to survive, to breed or reproduce, or to rear their young, or

(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or

(iii) to affect significantly the local distribution or abundance of the species to which they belong;

(c) deliberately take or destroy the eggs of such an animal, or

(d) damage or destroy a breeding site or resting place of such an animal.

1.15 Under these Regulations it is an offence to damage or destroy a breeding site or resting place whether the animal is in occupation or not, and protection extends to all life stages of the animal

in question. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.

1.16 In addition, seven native British bat species, including the soprano pipistrelle and the brown long-eared bat, that are frequently found in buildings, are listed as a 'Priority Species' under the under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRoW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006.

1.17 Section 15 of the National Planning Policy Framework (NPPF 2019) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

1.18 Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts), adequately mitigated or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

1.19 *Please note: the above text provides a brief summary of the legislation in relation to bats in England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.*

2. METHODS

Dusk Emergence Surveys

2.1 The survey programme was carried out by PAA ecologists (detailed in the table below) following current good practice guidelines published by The Bat Conservation Trust (Collins 2016). Each member of the survey team was appropriately qualified for their assigned tasks based on the CIEEM (Chartered Institute of Ecology and Environmental Management) competency framework (CIEEM 2013).

Table 1 Survey Team

Name	Appropriate Qualification
Gerard Hawley (GJH)	Principal Environmental Scientist MCIEEM
Caroline Boffey (CBo)	Ecologist ACIEEM
Beth Howes (BH)	Assistant Ecologist

2.2 The surveys used two surveyors to observe the potential roost features that had been identified. Each surveyor was equipped with a Batbox duet to aid detection of calls in the field and an Anabat SD1 to record calls for sonogram analysis and confirmation of species identification. Surveys commenced no later than 15 minutes prior to sunset and continued for approximately 1.5-2 hours.

2.3 Weather conditions were recorded at the start and end of each survey. Temperature and humidity were measured using a hygro-thermometer (810-190 www.etiltd.com). Wind strength was estimated using the Beaufort Wind Force Scale, ranging from 0 calm to 5 moderate breeze (NB while the scale extends to force 12 hurricane, 6 or higher would be unsuitable conditions for surveys). Cloud cover was estimated where 0% is a completely clear sky and 100% is completely overcast. The timings, dates and conditions for each survey are provided in the Table 2.

Table 2 Timings and Conditions of Surveys

Date	Survey Type	Team	Start Time	Sunset Time	End Time	Weather Conditions
04/09/19	Dusk Emergence	GJH BH	19:31	19:53	21:15	Dry with light wind. Temperature 13.6°C, decreasing to 12.0°C by the end of survey. Relative humidity 61%, increasing to 65%. Cloud cover 80% decreasing to 20%.
16/09/19	Dusk Emergence	CBo BH	18:45	19:07	20:35	Light rainfall at times and light wind. Temperature 13.7°C decreasing to 13.6°C by the end of survey. Relative humidity 93%, increasing to 99%. Cloud cover 100% throughout.

Data Analysis

2.4 Recorded bat calls from each of the survey visits were analysed using specialist sound analysis software Analook W. Based on parameters such as peak frequency and call duration, each call was assigned to a particular bat species or species group.

Limitations to Survey Techniques

2.5 Bat detectors have a range of approximately 20m. Some bat species such as noctule have very loud echolocation calls that can travel over long distances and, therefore, may be detected at greater range, whilst others, such as brown long-eared bats, typically have very quiet calls that are often only detected at close range.

2.6 Visual observation of bat activity is constrained by light levels. While surveyors may be able to see bats silhouetted against the sky, individuals flying against a background of dark buildings or trees are much more difficult to spot. The use of bat detectors to hear echolocation calls helps to ensure that activity is not missed. However, in low light conditions it is not always possible to ascertain details such as direction of flight.

2.7 Both survey visits were carried out on days when weather conditions were forecast to be suitable. The site was fully accessible during each of the survey visits. No significant limitations were encountered and, therefore, the results of the survey are considered to be robust.

3. RESULTS

Dusk Emergence Survey: 4th September 2019

3.1 The first bat, a soprano pipistrelle, was recorded at 20:12 approximately 21 minutes after sunset, commuting across the field from the direction of George Lane. It foraged around the tree for a few minutes. Bat activity, both commuting and foraging continued periodically for the duration of the survey.

3.2 Activity levels were generally high and the highest number of bats recorded at any one time was ten, the majority of which were soprano pipistrelle with smaller numbers of common pipistrelle. Subsequent Analook data analysis (automatic recording) confirmed the majority of the records to be that of soprano pipistrelle and there were frequent call of myotis species, possibly a whiskered (*Myotis mystacinus*) or Brant's (*M. brandtii*) bat (it is difficult to distinguish these species even with sonogram analysis and these two species were only separated in 1970). No bats were seen emerging from the potential roost feature of the tree.

Dusk Emergence Survey: 16th September 2019

3.3 The earliest record of bat activity was of a common pipistrelle at 19:10, three minutes after sunset. The emergence time of bats varies between species and is influenced by weather conditions and it not unknown for bats to fly before sunset. However, the relatively short interval after sunset suggests a roost quite close by although it was not seen emerging from a roost in the tree T2. The pattern of activity was very similar to that of the first survey with pipistrelle species foraging and commuting.

3.4 Many bats were seen commuting from the direction of George Lane, crossing the field and continuing in the direction of the rear gardens of residential properties on Hammond Drive possibly navigating to the west where there are woodlands (see Figure 1). This pattern of commuting continued for much of the survey. There is a good possibility of a roost(s) in properties to the east of the site and many bats were seen flying to the west towards the woodlands but none returning. The species recorded were common pipistrelle, soprano pipistrelle and *Myotis* species. No bats were seen emerging from the roost feature of the tree T2.

4. EVALUATION AND RECOMMENDATIONS

4.1 There are a number of trees, gardens and open greenspaces in the vicinity of the site and relatively high levels of commuting and foraging was observed. No bats were seen roosting in the tree but at least four species were recorded using the site.

4.2 No further bat surveys are considered necessary. However, in line with current good practice, if development has not begun within two years of this report then the value of the site for bats should be reassessed to ensure that the impact assessment and recommendations remain relevant to the proposals.

4.3 Surveys have followed current good practice standards for having confidence in a negative result and, therefore, the results are considered to be robust. As there is no evidence of use by roosting bats, a licence application to Natural England is not thought necessary. Should evidence of use by roosting bats be identified at a later stage then further advice should be sought on the need for a licence.

Lighting

4.4 Artificial lighting can be disturbing to wildlife, particularly species such as bats that are nocturnal and adapted to forage in low-light conditions. Even if no roost is present on site, it is good practice to adopt a sensitive lighting scheme to maximise biodiversity value post-development, with consideration given to the following points:

- Directing lamps where they are needed to avoid unnecessary light spillage;
- Use of narrow spectrum light sources with low ultra-violet, blue or white wavelength component to minimise insect attraction at lamps;
- Avoiding illumination of features and habitats that are likely to have greatest value to bats, such as tree canopies; and
- Use of timers and/or motion sensors to limit periods of illumination to essential times only.

4.5 Further guidance on lighting specifications is provided in publications available via the Bat Conservation Trust website www.bats.org.uk, such as the impacts of different types of lighting (RCEP 2009), effects of artificial lighting on bat behaviour (Stone 2013) and guidelines for mitigation (BCT 2014) and the Institution of Lighting Professionals and Bat Conservation Trust (2018).

Ecological Enhancement

4.6 National Planning policy requires that opportunities for ecological enhancement are sought within all development proposals, moving towards the aim of 'biodiversity net gain'. To achieve this, projects must be considered on an individual basis to ensure that new features, planting and management regimes are suitable for the conditions on site and thus likely to be successful in the longer term. Some potential options are presented for consideration in the table below with specific reference to bats.

Table 3 Potential Enhancement Measures for Consideration

Bat roost features	Bat boxes mounted on buildings or trees. It is best to have two or three boxes facing in different directions to provide a range of temperature conditions • Those facing south-east to south-west allow the sun to fall on each box for part of the day. On very hot days a south-facing box may overheat, but the other boxes should have some shade • The height should be at least 3m above the ground • The number of boxes should be maximised to provide a good range of roosting options • An experienced bat ecologists should be consulted during the bat box installation to advise on the most suitable locations and type of bat box.

5. REFERENCES

Altringham, J.D., 2003. *British Bats. New Naturalist Series 93*. Harper Collins.

BCT, 2014. *Interim Guidance: Recommendations to help minimise the impact of artificial lighting*. The Bat Conservation Trust.

CIEEM, 2013. *Competencies for Species Surveys: Bats*. Chartered Institute of Ecology and Environmental Management.

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

Institution of Lighting Professionals and Bat Conservation Trust, 2018. *Bats and Artificial Lighting in the UK.* Guidance Note 08/18.

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

PAA, 2019. Trustees of Hammond Ground: Ecology Assessment. Penny Anderson Associates.

RCEP, 2009. *Artificial Light in the Environment*. Royal Commission on Environmental Pollution.

Schofield, H.W., and Mitchell-Jones, A.J., 2003. *The Bats of Britain and Ireland*. The Vincent Wildlife Trust.

Stone, E. L., 2013*. Bats and lighting: overview of current evidence and mitigation*.

Waters, D., and Warren, R., 2003. Bats. The Mammal Society.

6. ABBREVIATIONS

BCT Bat Conservation Trust

CIEEM Chartered Institute of Ecology and Environmental Management

CRoW Countryside Rights of Way

EPS European Protected Species

LERN Lancashire Environment Record Network

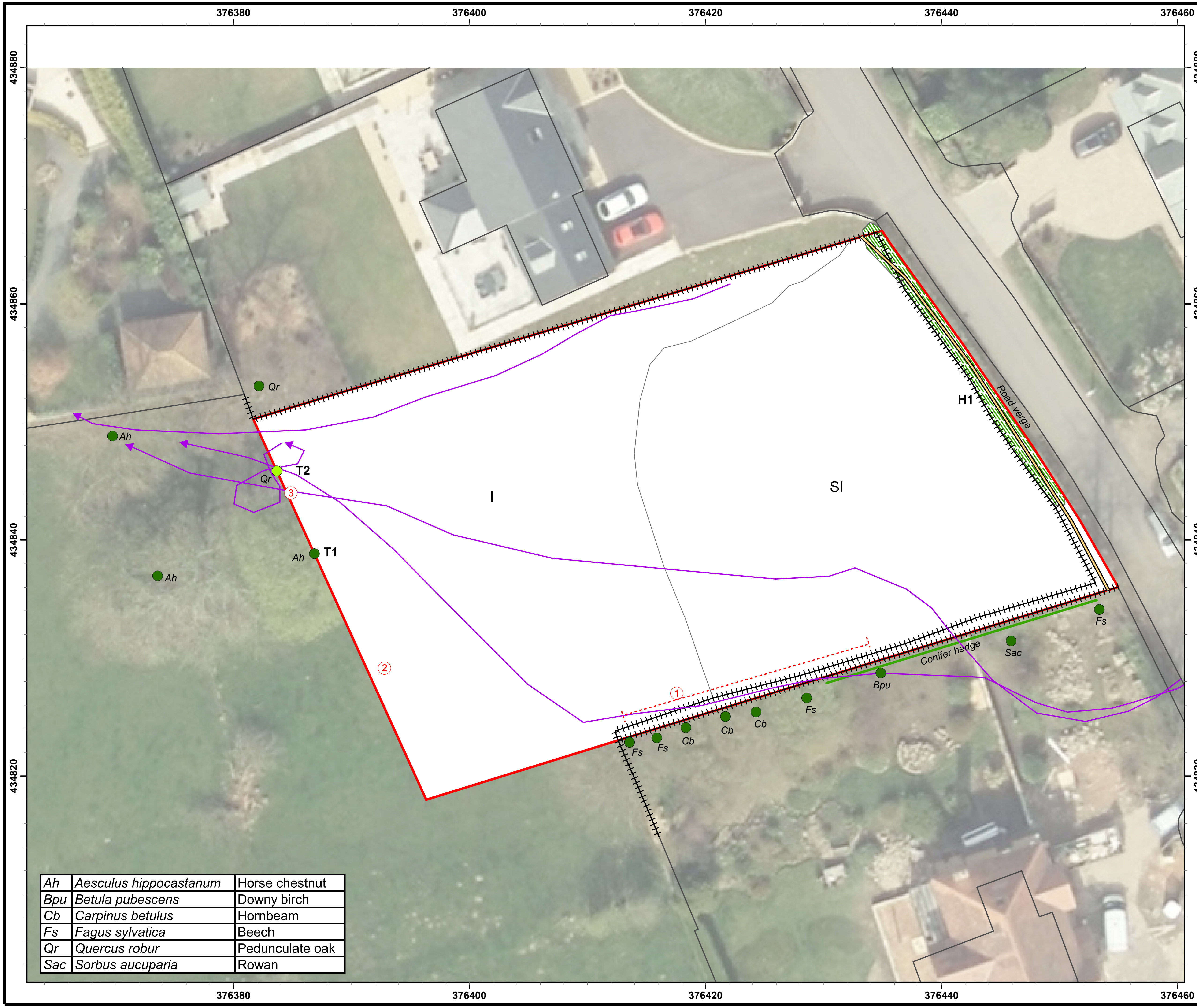
NERC Natural Environment and Rural Communities

NPPF National Planning Policy Framework

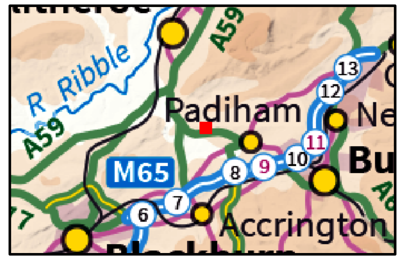
PAA Penny Anderson Associates Ltd

WCA Wildlife and Countryside Act

FIGURE



Ah	Aesculus hippocastanum	Horse chestnut
Bpu	Betula pubescens	Downy birch
Cb	Carpinus betulus	Hornbeam
Fs	Fagus sylvatica	Beech
Qr	Quercus robur	Pedunculate oak
Sac	Sorbus aucuparia	Rowan



Legend

- Site boundary

Habitat

- I Improved grassland
- SI Poor semi-improved grassland
- Defunct hedge - species poor
- Hedge
- P+W Fence
- Drystone wall
- Tree
- Tree with moderate bat roost potential - T2
- Main commuting paths

Target notes

1. Line of bare earth - cattle walkway
2. Stump remains of mature tree
3. Remains of fallen mature tree - deadwood habitat

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

0 1.5 3 6 9 12 Metres

Penny Anderson Associates Ltd
Consultant Ecologists

Penny Anderson Associates Ltd,
Parklea, 60 Park Road,
Buxton, Derbyshire, SK17 6SN.
Telephone 01298 27086

Project Name: Land off George Lane, Read

Discipline: Ecology

Title:

Emergence surveys for tree T2 2019

Scale 1:300		Drawing No. Figure 2	
Drawn By MDM	Originator CBo	Date 26/09/2019	
PAA Ref. G:\TRHG02_ReadPark_2019\Maps\		Revision 1.0	

TRHG02_Emergence_MDM_260919.mxd

APPENDIX 1

Photographs

Photo 1

Oak tree T2 right of picture

Photo 2

Horse chestnut and oak tree T2

Photo 3

View west across the site and wider landscape to rear

Penny Anderson Associates Ltd

CONSULTANT ECOLOGISTS

Park Lea, 60 Park Road, Buxton, Derbyshire SK17 6SN

Registered Office as Above | Registered in England & Wales | Company No. 4223109 | Directors: Mrs P Anderson Mr P Worrall Miss S Rogers