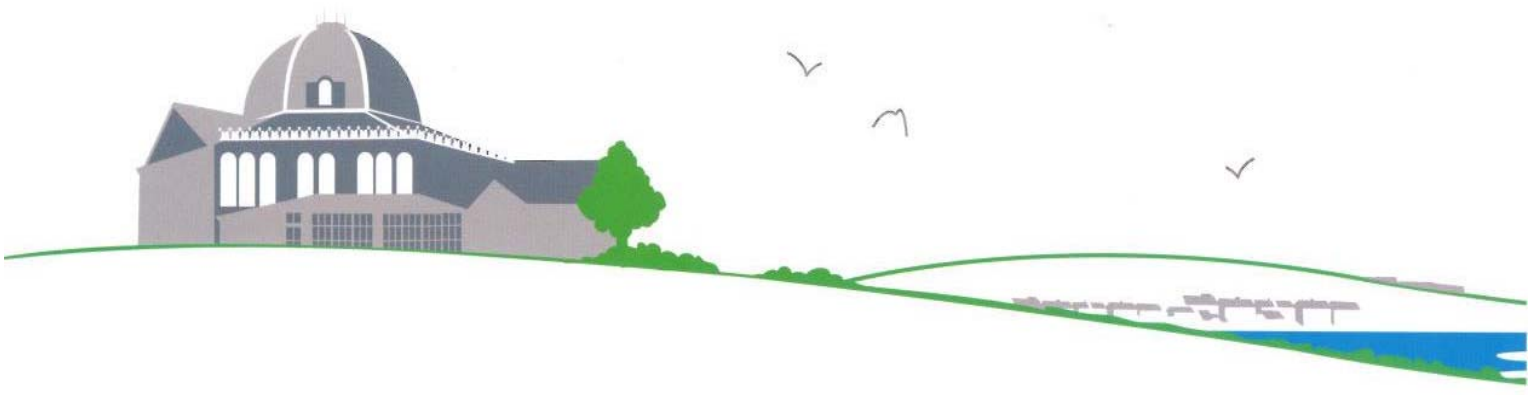
Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

TERRY PEEL, ROOFING CONTRACTOR LTD

PEAK DALE METHODIST CHURCH

BAT SURVEY REPORT



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BAT SURVEY REPORT

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

Signed:_____

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1. INTRODUCTION

Background

1.1 Penny Anderson Associates Ltd (PAA) was commissioned by Heathcote Design and Development (on behalf of Mr T Peel) to carry out a daytime site visit to assess potential usage of a building by roosting bats. This survey was carried out in the summer of 2017, whereupon the building was assessed as being suitable for use by bats, and the report made recommendation for further survey work to confirm the presence or likely absence of roosting bats.

1.2 This report describes the survey effort subsequently undertaken during the bat active season 2018, together with the results and any recommendations for mitigation where relevant.

Site Description

1.3 The site is the former Peak Dale Methodist Church, now disused and proposed for conversion to residential use. The building is situated within the small village of Peak Dale, Derbyshire, with residential properties and gardens immediately adjacent on three sides and open grassland to the rear of the plot. The surrounding landscape is open fields, with dry stone walls and occasional broadleaved trees along field boundaries.

Bat Biology

1.4 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.

1.5 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).

1.6 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).

1.7 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

Specific to Bats

1.8 All wild species of bat are protected under the WCA 1981, which has also been amended by later legislation, including the CRoW (Countryside Rights of Way) Act 2000, and this legislation is applicable to England and Wales.

1.9 Bat species are also listed under Annexes IIa and IVa of the European Community (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.

1.10 Under this legislation it is an offence to kill or injure a bat, disturb a bat whilst it is roosting, and obstruct, damage or destroy a breeding site or resting place, whether the animal is in occupation or not. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.

1.11 In addition, seven native British bat species including the soprano pipistrelle and the brown long-eared bat, that are frequently found in buildings, and are listed as a 'Priority Species' 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 NERC Act 2006.

1.12 Section 11 of the NPPF 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.

1.13 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.

2. METHODS

Overview

2.1 The survey programme was led by licensed bat ecologist Hazel Robson[1] MCIEEM[2] with a team of three surveyors for each survey visit. The survey team included licensed bat ecologists Sarah Ross and Helen Hamilton, and ecologists Rob Lamb, Katharine Longden and Caroline Boffey. Each surveyor was appropriately qualified for their assigned role based on the CIEEM competency framework (CIEEM 2013).

2.2 All surveys followed current good practice guidelines published by The Bat Conservation Trust (Collins 2016) so that the survey techniques and equipment used were consistent with currently accepted standards for bat survey. All visits were undertaken within the recommended season on dates with weather conditions forecast to be suitable.

Dusk Emergence/Dawn Re-entry Survey

2.3 Each survey commenced no later than 15 minutes prior to sunset and continued for 1.5 - 2hrs to take in the most likely period when bats would be observed leaving a roost site.

2.4 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 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 survey). Cloud cover was estimated using the standard meteorological scale of oktas (eighths), where 0/8 is a completely clear sky and 8/8 is completely overcast. The timings, dates and conditions for each survey are provided in the table below.

Table 1 Dates and conditions of surveys

Date	Type of Survey	Start Time	Sunset / Sunrise	End Time	Weather Conditions
11/05/18	Dusk emergence	2030	2050	2215	Dry with light wind (Beaufort Scale 2). Temperature 15°C, decreasing to 10.8°C. Relative humidity 45%, increasing to 64%. Cloud cover 8/8 throughout.
24/05/18	Dusk Emergence	2055	2115	2245	Dry with light wind (Beaufort Scale 2). Temperature 15°C, decreasing to 14.2°C. Relative humidity 62%, increasing to 85%. Cloud cover 3/8 throughout.

[1] *Natural England class licence registration number 2015-10504-CLS-CLS, survey level 2 (WML-CL18)*

[2] *Full member of Chartered Institute of Ecology and Environmental Management*

Data Analysis

2.5 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.

Limitations to Survey Techniques

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 are much more difficult to spot. The use of bat detectors to hear echolocation calls helped to ensure that activity was not missed; however, in low light conditions it is not always possible to ascertain details such as direction of flight.

2.7 Bat detectors have a range of approximately 20m. Some species such as noctules 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 only detected at close range. The survey effort on each visit used surveyors at sufficient number of vantage points to ensure adequate visual and bat detector coverage of all potential roost features on the structure.

3. RESULTS

Dusk Emergence Survey: 11/05/18

3.1 A common pipistrelle bat was seen to emerge from beneath the fascia board at the eaves on the front elevation at approximately 20 minutes after sunset. After this time foraging and commuting activity was detected regularly every few minutes throughout the remainder of the survey, with a maximum of one bat seen at any one time.

3.2 At approximately 35 minutes after sunset echolocation calls of a *Myotis* bat species were briefly detected. No other bat species were encountered during the survey.

3.3 The location of the roost and the type of roost feature are illustrated on photos provided in Appendix 1.

Dusk Emergence Survey: 24/05/18

3.4 Common pipistrelle bats were seen and heard from approximately 35 minutes after sunset, but were observed flying into the site from the east at this time and did not emerge from the church.

3.5 Activity levels during the survey were generally quite low, but there was some foraging activity by common pipistrelle bats within the site, mainly around the eastern corner of the building where it is sheltered by shrub planting and neighbouring buildings.

3.6 Up to two common pipistrelle bats were seen together at any one time.

3.7 No other species were encountered during the survey and no bats were seen emerging from roost.

4. EVALUATION AND RECOMMENDATIONS

4.1 The survey results indicate that Peak Dale Methodist Church is used as a day roost[3] by small numbers of, or possibly a single individual, common pipistrelle bat.

4.2 Conversion of the building for residential use presents the following potential impacts:

- Disturbance of bats in a roost;
- Modification or destruction of a bat roost;
- Obstruction of access to a bat roost; and
- Causing harm to bats.

4.3 Appropriate mitigation and avoidance measures will need to be implemented to avoid these impacts.

4.4 Activities likely to affect the roost or cause disturbance to bats using the roost include:

- Removal of roof covering on the pitch above the roost;
- Sealing the gap between fascia board and stonework at roost entrance;
- Removal/renovation of fascia board at roost entrance; and
- Erection of scaffold in front of roost entrance.

4.5 Recommendations for mitigation to avoid or compensate for impacts on bats are provided in Section 5.

4.6 If development has not commenced within two years, the site should be re-evaluated to ensure that any recommendations for mitigation or licensing are based on up-to-date survey data.

[3] *Day roost – a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.*

5. RECOMMENDATIONS

Licensing

5.1 If the existing roost can be retained and any works that would cause disturbance to bats scheduled for a period when bats would be absent (November to February), then it may be feasible for the contractors to work under a non-licensed method statement, co-ordinated by a licensed bat ecologist. The contractors would need to strictly adhere to the directions of the ecologist and maintain regular contact during the course of the works to ensure that they remain compliant with current wildlife legislation and do not inadvertently commit an offence.

5.2 If the existing roost were to be modified in any way during the course of works, or disturbance could not be avoided, then the works would need to be licensed by Natural England.

Provision of Roost Habitat

5.3 Under Natural England's current licensing policies, loss of a day roost of a common bat species could be compensated for with bat boxes; however, the ideal scenario would be to retain the roost *in situ*, and based on the location of the roost this does appear to be feasible within the current proposals. Retaining the existing roost would also be more visually discrete than attaching boxes to the exterior of a heritage building such as the church.

5.4 Installation of any replacement roost features should be supervised by a licensed bat ecologist and any retained roosts should be inspected upon completion of work to ensure that they are fit for purpose. (This will usually be a condition of any licensable mitigation strategy.)

Disturbance

5.5 Impacts relating to disturbance can often be addressed with sensitive timing of works; however, if disturbance cannot be avoided then an EPS licence from Natural England would be required. As the roost is a day roost of a relatively common species, provided works are licensed there would not be any restriction on timing, but adequate measures would be required to avoid causing physical harm to bats (see below).

Avoiding Harm to Bats

5.6 The following range of measures would need to be incorporated into the construction programme to minimise the risk of causing harm to bats:

- Toolbox talk to contractors to brief them on the presence of bats, the location of the roost, the requirements of the Natural England licence or method statement and implications of non-compliance;

- Careful destructive search/soft strip of roost features (if required), under supervision of licensed bat ecologist (any bats encountered to be moved by the ecologist to a safe location elsewhere on site). Destructive searches should be avoided on days with wet or excessively windy weather so that bats are not exposed to harsh conditions that may compromise their welfare;

- In the event that bats are encountered by contractors when the ecologist is not on site, works in that area must cease immediately and must not resume until further advice has been sought from the ecologist;

- Licensed bat ecologist to be 'on call' to attend site in the event that bats are encountered at any other point during the works; and

- Breathable roofing membranes (BRMs) must not be used in any areas where bats would have access. BRMs present a significant risk of harm to bats as over time the bats' claws will pull tiny threads in the membrane and cause them to become entangled, resulting in their entrapment and subsequent death. This damage to the membrane also can also reduce its effectiveness and shortens its useful lifespan (Waring *et al.* 2012). The only roof lining fabric currently considered safe for use in bat roosts is Type 1F bitumen felt.

Lighting

5.7 Bats are nocturnal and adapted to forage in low-light conditions. Whilst some species can be fairly tolerate of artificial illumination, brown long-eared bats in particular are fairly sensitive to this type of disturbance, therefore potential impacts on bats must be considered for any new lighting associated with the proposals, with the following points taken into consideration when deciding on artificial illumination:

- Lamps must be directed where they are needed to avoid unnecessary light spillage;

- The use of timers and/or motion sensors should be considered to limit periods of illumination to essential times only; and

- The roost entrance must not be directly illuminated.

6. REFERENCES

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

CIEEM, 2013. *Competencies for Species Survey: 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.

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

PAA, 2017. Peak *Dale Methodist Church Preliminary Bat Roost and Nesting Bird Assessment*. Report prepared for Terry Peel Roofing Contractor Ltd by Penny Anderson Associates Ltd.

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

Waring, S.D., Essah E.E, Gunnell K. & Bonser R.H.C., 2012. *Breathable roofing membranes and bats: interactions, outcomes and predictions*. http://www.batsandbrms.co.uk/literature.php

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

Drawings prepared by Heathcote Design & Development

02.01 Rev C Site plan

03.02 Rev A Proposed plans

03.06 Rev A Proposed front and side elevations

03.07 Rev A Proposed rear and side elevations

7. ABBREVIATIONS

BRMs	Breathable Roofing Membranes
CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside Rights of Way
EC	European Community
EPS	European Protected Species
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd
WCA	Wildlife and Countryside Act 1981

APPENDIX 1

Site Photographs

Photo 1

Location of roost on front elevation of church.

Photo 2

Roost feature: crevice between uneven stonework and wooden fascia board at eaves, likely providing access to the top of the wall plate.

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