

*John Drewett  
Ecology*

Bat survey report

Egton Church of England Primary School, Egton,  
Whitby, North Yorkshire, YO21 1UT



Report date: 6 July 2011



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**Record of report and revisions**

Date	Details	Issued by
6 July 2011	Original report	John Drewett

*If we collected information about species of plants and animals at, over or near your property during this survey, basic details of these records will be forwarded to the most appropriate local biological recording centre after completion of the survey. As ecologists, we rely on these centres to supply information about the wildlife previously recorded in the vicinity of survey sites in order to assess the significance of survey results in the local context. We feel that it is important to ensure that the data held by these centres is as complete and up to date as possible, in order that we can continue to give the best advice to all of our clients. If you are not prepared to allow the data collected during our survey to be used in this way you must let us know.*



## 1 Executive summary

A bat survey of Egton Primary School was commissioned by Architects Design Group on behalf of the Governors of Egton Church of England Primary School in April 2011 in connection with proposed internal alterations to create a mezzanine floor.

The survey was carried out to establish:

- The likelihood of the site and its features to support bats or other protected species
- The presence or absence of bats or other protected species
- The numbers of bats or other protected species present
- The purposes for which bats are using the site
- The significance of the site for bats
- Bat behaviour that may be affected by the proposed activity or development
- Methods that must be used to enable the development to proceed without causing an adverse impact on protected species
- If a European Protected Species licence will be required before works go ahead

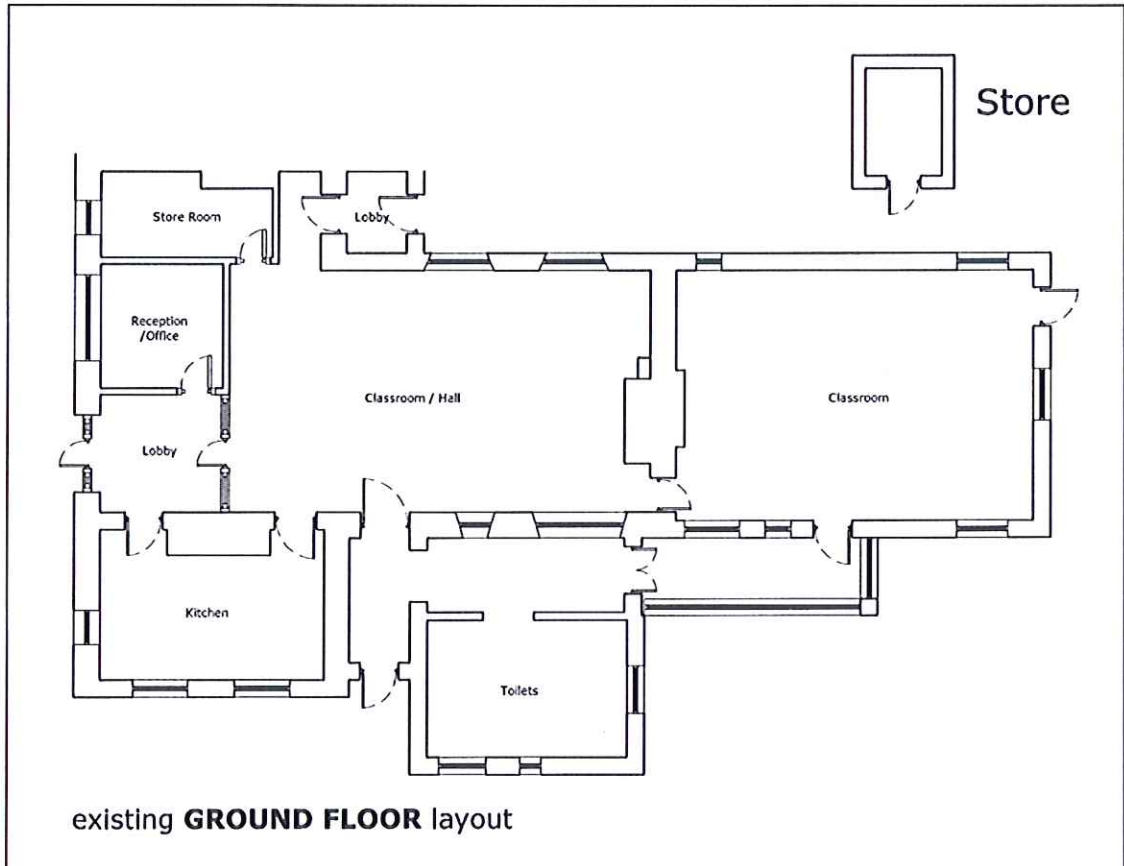
Common Pipistrelle and Brown long-eared bats were found to be roosting in the building, although mostly bats were associated with the roofs above the School House and kitchen which will not be directly affected by the proposed works. The roosts are considered to be of local to county importance.

The proposed works have the potential to cause some disturbance to bats roosting in adjoining areas and there is the risk of encountering individual bats during works. However, it is considered that the risks to bats can be avoided by constructing the mezzanine floor first and delaying removal of existing ceilings until after 15 September. Details are included in the Method Statement in Chapter 9.



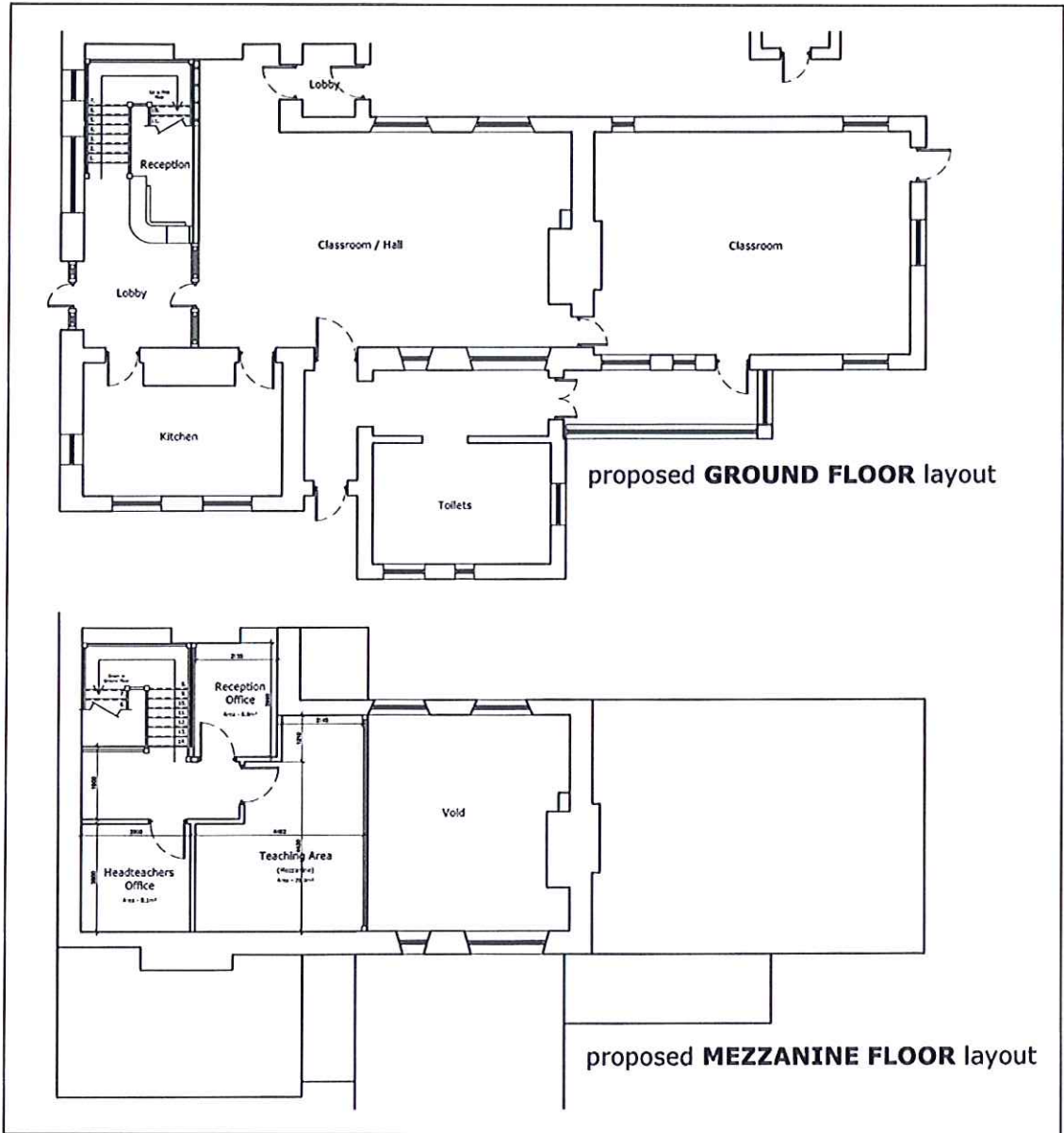
## 2 Development proposals

The proposal is for the construction of a mezzanine floor within the existing building. This will necessitate alterations to the roof void within the affected area.



Existing plan

M/MINPA  
17 FEB 2012



*Proposed plans*

NYM/0103  
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### 3 The survey

The project comprised:

- An office-based study during which existing information on the site and its surroundings was gathered from various sources
- A scoping survey to assess the potential of the site to support protected species
- Bat activity surveys to gather detailed information about bat activity, roosts and flightpaths

#### 3.1 Who carried out the work and when

The on-site surveys were carried out by:

John Drewett BSc. (Hons.), MIEEM on 5 & 30 May 2011

Digby Angus on 5 May 2011

Val Kirk on 5 & 30 May 2011

Alan Ryder on 5 & 30 May 2011

David Ryder on 5 & 30 May 2011

All surveyors hold current Natural England bat survey licences.

The background research, analysis and report writing was carried out by John Drewett.

#### 3.2 What we did

Our survey comprises two parts: research carried out in the office and surveys carried out on site.

During the office-based part of the project we:

- Consulted the Multi-Agency Geographic Information for the Countryside (MAGIC) website at <http://magic.defra.gov.uk> to check if there are any statutory nature conservation designations relating to the site or nearby. This is so we can determine any restrictions on activities on the site that might apply and determine any impacts that the proposed project might have on such sites.
- Asked North Yorkshire Bat Group for records of bats previously recorded within 2km of the survey site to gather any previous information about bats at the site and to put our findings in the context of existing information.
- Researched the features and habitats of the area through the use of maps and aerial photographs.

During the on-site survey work we:

- Undertook an brief survey of habitats and landscape features on the site and within 300m
- Examined the building to record its main features especially those that may be suitable for roosting bats or other protected species
- Took photographs of the site, its features and any evidence of bats to illustrate the findings in this report
- Carried out bat activity surveys at dusk and dawn to record bat flying over or past the site, feeding at the site and leaving or entering buildings.
- Weather conditions were recorded.



### 3.3 What equipment we used

All surveys utilise a digital camera, binoculars, torches and ladders as necessary. The following additional equipment was used in conducting this survey:

- Digital thermometer / hygrometer
- Heterodyne bat detectors
- Frequency division bat detector



## 4 Existing information

### 4.1 Designated statutory protected sites

The survey site is within the North York Moors National Park.

There are no statutory nature conservation designations applicable to the survey site or its immediate surroundings.

### 4.2 Existing records of protected species

The following records of bats previously recorded within 2km of the site were supplied by North Yorkshire Bat Group. This information has largely been assembled as a result of responding to enquiries from the public about bats. Some recent records have also been supplied by consultants carrying out survey work in connection with proposed developments. It does not, therefore, represent a comprehensive assessment of the local bat fauna.

Species	Site	Grid ref.	Date	Comment
Daubenton's Bat	The Old Mass House, Egton	NZ8005	1986	Flying
Pipistrelle species	Egton Bridge	NZ8005	01 Jul 1990	
Unknown	Riverside, Egton Bridge, Whitby	NZ8005	30 Jun 1986	Roost
Unknown	Pear Trees House, Broomhouse Lane, Egton Bridge	NZ801052	05 Jul 2007	Roost over window.
Unknown	Dale View, Egton	NZ808064	08 Oct 2007	3 bats found behind house alarm box
Unknown	Red House Farm, Egton	NZ809062	04 Oct 2006	In flight
Brown Long-eared Bat	Honeybee Nest Cottage, Egton Grange, Whitby	NZ811048	28 May 2002	Summer roost
Unknown	Grosmont	NZ8205	08 Jul 2001	Orphaned bat.
Unknown	Grosmont	NZ8205	23 Aug 2007	Bat Inside house
Unknown	The Old School, Grosmont	NZ828051	05 Mar 2007	Probable bat roost in roof.

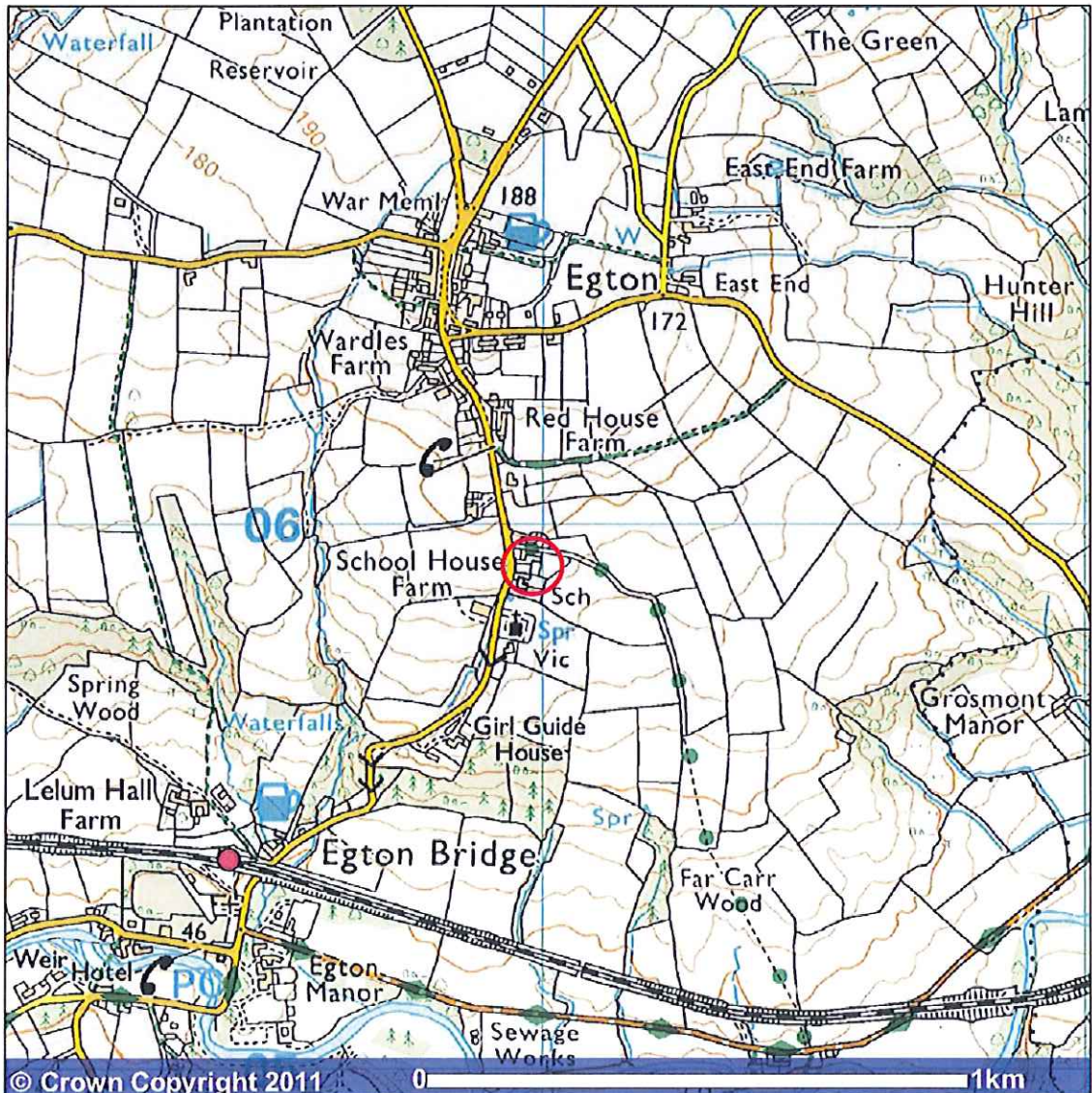




## 5 The survey site

### 5.1 Location

Site name and address	Egton Church of England Primary School, Egton, Whitby, YO21 1UT
OS Grid Ref.	NZ810059 <span style="float: right;">Altitude 145m</span>
Local Planning Authority	North York Moors National Park Authority



Location map

### 5.2 Surroundings

The school is located in a rural area with limited light pollution, although there are a series of street lights along the road on the western side of the school.



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The school is located to the south of the village and is in an area of agricultural land dominated by small fields largely used for grazing. The land falls away to the east and south. The aspect of the surroundings is particularly open towards the east.

There are some extensive woodlands about 500m to the south of the school which are linked to the site by a line of roadside trees. These woodlands are broadleaved and extend along the Esk valley. The River Esk is 1km to the south.



Survey site in landscape setting

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## 6 Buildings

Each building surveyed is described below and has been assigned to one of five categories according to its potential to support roosting bats:

**No bat roost potential.** No bat droppings, feeding remains or other evidence of use by bats was found and there were no suitable crevices in which bats could roost.

**Low bat roost potential.** No bat droppings, feeding remains or other evidence of use by bats was found, but crevices were present which could be suitable for occasional or casual use by bats, but the risk is considered to be low.

**Medium bat roost potential.** A small number of droppings were scattered in the building, indicating that bats have at least flown there OR there are some crevices that are likely to be suitable for roosting bats were present, although these may not show signs of use (e.g. entrances covered by cobwebs. etc.).

**High bat roost potential.** Signs of bats are present in the form of droppings, feeding remains, etc., but with no particular concentration. There are many crevices of a type likely to be attractive to roosting bats. Such buildings may only be suitable at particular times of year.

**Confirmed bat roost.** Bats and/or concentrations of droppings found.

### 6.1 Egton Primary School

#### 6.1.1 Description

The building is a Victorian village school constructed in 1874 and recently enlarged with a modern classroom to the rear. The building is of stone construction with a slate roof finished with terracotta ridge tiling. At the north end, the school building is attached to a dwelling known as The School House. There is a chimney on the school itself and a large chimney stack at The School House.

A full internal inspection of the building was not carried out. However, it is understood that the suspended ceiling currently forming the ceiling of the classroom where works are proposed conceals another roof void higher in the roof. The ceiling of the modern extension follows the profile of its roof.

The school appears to be well maintained, although there are a few slightly raised slates visible.





School with School House in foreground

#### 6.1.2 Evidence of bats

No signs of bats were found in or around the school during this survey. However, the roof voids were not examined.

An initial inspection by another ecological consultant previously found bat droppings within the school and neighbouring house. In addition to this, although the loft space of the school building was not accessible at the time of that survey droppings found during an earlier inspection by the Owl and Hawk Trust suggested that there is bat roost within the building.

#### 6.1.3 Bat roost potential

Whilst the buildings appear to be well maintained with few obvious significant holes, the presence of some raised slates and evidence of bats found during previous inspections suggests that the building has high potential to support roosting bats.

#### 6.1.4 Other protected species

It is understood that previously a Tawny Owl had attempted to nest in the roof. At the time of survey there was no evidence of any protected species on site, other than bats.

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## 7 Bat survey results

### 7.1 Introduction to activity surveys

These surveys record bats entering or emerging from buildings, flying inside and outside buildings and over the site. This supplements the data in the previous chapters that rely on existing records, finding signs of bats and assessments of roost potential based on characteristics of the buildings.

### 7.2 Weather and timing of activity surveys

Weather can have significant impacts on patterns of bat activity. Whenever possible, surveys are carried out during calm, mild and dry weather as these conditions are most conducive to bats. Dusk surveys normally commence just before sunset and last up to two hours. Dawn surveys normally commence around 1 ½ hours before sunrise and last up to two hours.

Date	Time		Temp (C)		Wind*		Cloud cover %		Rainfall		Sunset/sunrise
	Start	End	Start	End	Start	End	Start	End	Start	End	
5/5/11	2030	2150	14.1	10.0	2	0	100	100	Light	None	2041
30/5/11	0300	0530	12.2	12.6	1	1	50	100	None	Light	0442

\* Beaufort scale

### 7.3 Bat activity survey results

#### 7.3.1 5<sup>th</sup> May survey

The first bat of the evening was a Common Pipistrelle bat, observed at 2035 hrs emerging from close to the base of the chimney on the rear of the school house, on the south facing roof. Other Common Pipistrelle bats emerged from the vicinity of this first bat, although the precise points of emergence were difficult to determine due to the layout of the roofs. Other Common Pipistrelle bats appeared to emerge from the ridge of the same roof. In total at least eight bats were seen to emerge, most flying off in a south-easterly direction.

At 2058 hrs a Common Pipistrelle bat emerged from halfway along the ridge of the roof that links the school house roof to the main school roof.

Although bats continued to forage throughout the survey period, particularly along the north side of the school and along the road, no other bats were seen to emerge.

No other species of bat were recorded during the survey other than for a Noctule bat which flew high over the site at 2140 hrs.





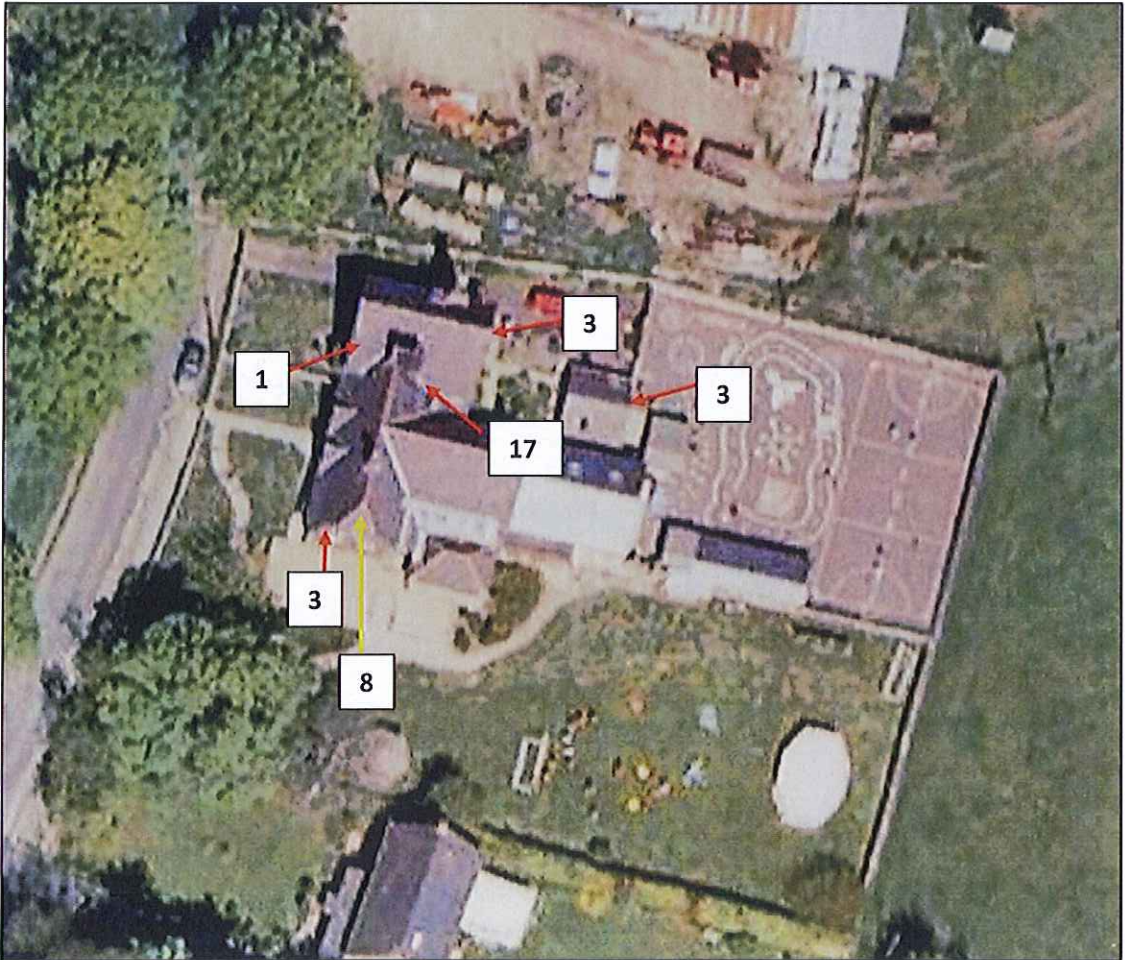
*Approximate location of first emergence marked by arrow. Location of 2058hrs emergence marked by red spot*

### 7.3.2 30<sup>th</sup> May survey

27 Common Pipistrelle bats and 8 Brown long-eared bats were recorded entering the buildings during the dawn survey. The majority of the Common Pipistrelle bats were entering the roof of the school house, though the largest roost is close to the area of the proposed works.

The locations of the various roosting sites are illustrated in the following photographs.





Roost locations: red represents Common Pipistrelle, yellow represents Brown long-eared.  
Numbers entering each location are indicated



Roost sites at rear

Egton Primary School

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Main roost location



South elevation roosts: Common Pipistrelle to left & Brown long-eared to right

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*Roost of single Common Pipistrelle bat at front*

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## 8 Assessment and recommendations

### 8.1 Determining the value of the site for bats

The first step in determining the value of a site for bats requires the relative rarity of each species found at the site to be determined. Whilst there are no accurate population figures for each species in the UK, there are fair estimates available for England (*Wray et. al., 2010*). For North Yorkshire, data from North Yorkshire Bat Group has been used. The appropriate assessment for the survey site has been highlighted in each table.

**Table 1: Categorizing bats by distribution and rarity** (*species not recently recorded in North Yorkshire are shown in italics*)

Rarity within range	England	North Yorkshire
Rarest	<i>Greater horseshoe</i> <i>Bechstein's</i> Alcathoe <i>Greater Mouse-eared</i> <i>Barbastelle</i> <i>Grey long-eared</i>	Alcathoe Leisler's Nathusius' Pipistrelle
Rarer	<i>Lesser Horseshoe</i> Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' Pipistrelle <i>Serotine</i>	Whiskered Brandt's Daubenton's Natterer's Noctule
Common	Common Pipistrelle Soprano Pipistrelle Brown long-eared	<b>Common Pipistrelle</b> Soprano Pipistrelle <b>Brown long-eared</b>

Bats may use a site for a number of different purposes. Based on current knowledge, some of these uses have great significance to the conservation of the species and be difficult to replace, whilst others may be relatively unimportant or be easily replaced. The value of these different uses on varying geographic levels is given in table 2.

**Table 2: Valuing bat roost types**

Geographic frame of reference	Roost types
District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	<b>Maternity sites (common species)</b> Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats

	(rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting SSSI guidelines
International	SAC sites

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Commuting bats using a site need to be taken into account because they may be using features of the site to move between roosts either on or off site and their foraging areas. Whilst the survey may not include roost sites on other land, the behaviour of bats and existing information gathered during the desk study can be used to estimate potential roost sites. Four features are used to score commuting routes and the scores are added together. Table 3 describes this system.

Species	Number of bats	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of other linear features (1)
		Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number / not known (4)	Walls, gappy or flailed hedgerows and moderate field sizes (3)
		Large number of roosts, or close to a SSSI for the species (5)	Well grown and well connected hedgerows, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

A similar scoring system has been devised for use in valuing foraging areas. This is described in Table 4.

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number / not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
		Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)

Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)
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The scores derived for commuting routes and foraging areas can be compared with the values in Table 5 to value these features appropriately.

Geographic frame of reference	Score
International	>50
National	41-50
Regional	31-40
County	21-30
District, local or parish	11-20
Not important	1-10

## 8.2 Evaluation

Common Pipistrelle bats and Brown long-eared bats were found to be roosting at the site.

27 Common Pipistrelle bats were recorded, dispersed among five different roost sites within the building. 17 of these bats were observed entering one gap under the eaves of the School House. The remainder of the bats are dispersed in small groups around the buildings. It is likely that the main roost site is a small maternity roost of this species with the smaller groups containing non-breeding females or males.

8 Brown long-eared bats were recorded entering the roof void above the kitchen. This is likely to be a small maternity roost of this species.

Using the evaluation procedure in 8.1 these roosts are considered of local to county importance.

## 8.3 Potential impacts in absence of mitigation

None of the identified roost sites is within the area scheduled for works. However, all except the two southerly roost sites above the kitchen are in areas very close to the proposed work site, so bats could be disturbed due to noise, vibration and other building activity. The roost sites above the kitchen will not be directly affected by the works as this is a separate and self-contained roof void.

Based on the behaviour observed during the surveys, this building supports a very dispersed roost, so it is likely that individual bats could be encountered in any part of the building at any time. Thus, there is the potential for disturbance to occur to any such bats during works and the risk of injury to bats if appropriate precautions are not taken.

## 8.4 Requirement for Habitats Regulation (EPS) licence

Where the development will cause an adverse impact on bats or their roosts which cannot be avoided by changing the timing, working practices or methods then a Habitats Regulation (EPS) licence is required.



In this case it is considered possible to carry out the proposed works without having an adverse impact on bats so long as the method statement in the following section is followed.

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## 9 Mitigation

### 9.1 Introduction

**Mitigation** describes measures to avoid or reduce negative impacts. There is a clear relationship between mitigation and scheme design, as many impacts can be avoided or reduced at the outset. Mitigation measures should be designed to avoid negative ecological impacts (especially those that could be significant); reduce or minimize negative ecological impacts that cannot be avoided; and repair or reinstate habitat and rescue habitats or species.

The method statement below details measures which are considered appropriate in relation to the proposed development.

### 9.2 Mitigation method statement

#### 9.2.1 Timing of works

No works to be carried out that will affect the roof or roof void between May 15 and September 15 inclusive. The new mezzanine floor may be constructed within the existing building during this time, so long as work does not extend into the roof voids.

#### 9.2.2 Removal of existing ceilings

This work may commence after 15 September as bats will have completed their breeding cycle by this time. Although many bats will have dispersed, it is likely that some bats will still be present so work must proceed with care to minimize the risk of injury to any bats present.

If bats are found during works all work in the immediate area MUST STOP. Consult John Drewett Ecology immediately on 01677 451886.

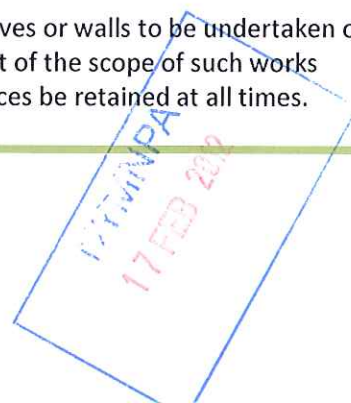
If bats have been exposed and have not flown off, gently re-cover them taking particular care not to crush them. If this is not possible and the bats are at risk carefully place the bats in a secure, ventilated container until help is obtained. You are strongly advised to wear gloves when handling bats.

#### 9.2.3 Timber treatment

If timber treatment is necessary a thorough check of the roof void must first be made to ensure bats are not present. Timber treatment chemicals can be harmful to bats so only 'bat-friendly' products based on permethrin or cypermethrin may be used. Even these can harm bats which come into direct contact with them, so a careful check must be made for bats before spraying begins. If bats are present spraying must not take place. Using bat friendly chemicals will ensure that any bats that choose to roost at the site in future are not harmed.

#### 9.2.4 Other works

No re-setting or relaying of slates nor external pointing around eaves or walls to be undertaken on any part of the school or School House without written agreement of the scope of such works from the ecologist. This is to ensure that existing bat roosting places be retained at all times.





## 10 Background information and references

### 10.1 Bats: Legislation and policy guidance

Bats and their roost sites are protected by the Wildlife and Countryside Act, 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. This protection applies at all times, even if the bats are absent at the time an activity is carried out. Although many surveys are carried out because Local Planning Authorities must consider the impact on protected species in their decision making, it should be noted that bats and their roosts are protected, whether or not a survey has been requested, and that ignorance of the presence of bats is no defence against prosecution. Fines of up to £5000 and a six month prison sentence can be imposed for each offence.

Among other things it is an offence to:-

- Deliberately capture (or take), injure or kill a bat
- Intentionally or recklessly disturb bats where the disturbance is likely to significantly affect the ability of that species to survive, breed, rear or nurture their young or; to hibernate or migrate or; to affect significantly the local distribution or abundance of the species to which they belong
- Damage or destroy the breeding or resting place (roost) of a bat
- Intentionally or recklessly obstruct access to a bat roost

Bat conservation is also part of the biodiversity action plan process. The Convention on Biological Diversity, signed in Rio de Janeiro in 1992, requires states to develop national strategies and to undertake actions aimed at maintaining or restoring a wide range of biodiversity.

In the UK individual Species Action Plans (SAPs) address the causes of decline for species that have been identified as priorities for UK conservation action. National action plans cover Bechstein's Bat, Greater Horseshoe Bat, Lesser Horseshoe Bat, Barbastelle, Noctule, Soprano Pipistrelle and Brown long-eared bat. At a local level, Local Biodiversity Action Plans for smaller geographical areas may cover a greater or lesser range of bat species.

In England & Wales, the Natural Environment and Rural Communities (NERC) Act, 2006 imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". It notes that "conserving biodiversity includes restoring or enhancing a population or habitat". Local authorities frequently require protected species surveys to be submitted with planning applications so that they can fully take conservation into account in their decision making.

PPS9: Biodiversity and Geological Conservation is the national planning statement that covers protected species. It provides guidance to local planning authorities as to how the Government's policies on nature conservation should be implemented through the planning system. It states that "the aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that... adequate mitigation measures are put in place... If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused".

Where it is proposed to carry out works which will have an adverse impact on bats or on a bat roost, a European Protected Species (EPS) licence must first be obtained from Natural England, even if no bats are expected to be present when the work is carried out. Granting of planning permission does not override this requirement.

An EPS licence application requires details of the proposed works, the bats which may be affected and the mitigation proposed to maintain the favourable status of bats in the region. The application is usually drawn up on behalf of the client by a specialist ecological consultant. The consultant is required to check that work is proceeding in accordance with the method statement and to also carry out monitoring of the impact on bats for sometime after completion of the works. Natural England aims to make a decision on an application within 30 working days of receipt. There is no guarantee that a licence will be granted and there is no fast track process to obtaining one. Applications can only be made once planning permission has been granted (where appropriate).

EPS licences can only be issued if Natural England is satisfied that there is no satisfactory alternative to the development and that the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

## 10.2 Brief summary of bat biology

Bats are the only mammals to have developed powered flight. They are the second largest group of mammals in the world, with almost 1000 different species. In Britain 17 species occur, with the number of species declining towards the north. All British bats feed solely on invertebrates.

British bats live in crevices in trees, caves, buildings, bridges, tunnels and other structures. They are long-lived animals which use roost sites to which they return year after year. In summer females are usually colonial, each species gathering together in warm maternity roosts to give birth to their single young. Males often spend the summer alone or in small groups. Several different roosts may be used over a year, the bats moving between these places depending on prevailing weather and other conditions.

In winter bats hibernate. Their body temperature falls close to the ambient temperature of their chosen hibernaculum and their heart rate and metabolism drop dramatically. In this state they use little energy, allowing them to survive until spring on their fat reserves. They are very sensitive to temperature changes at this time. Changes may cause them to wake, a process which uses considerable energy reserves. Many species hibernate in cool, stable underground sites such as caves and tunnels, although individual bats may be found in almost any small crevice.

For more than 50 years bats suffered a major decline. The reasons are many and varied, but include destruction of roost sites, a reduction in insect prey and direct and indirect poisoning from toxic chemicals. As a result of better protection, some are now doing better, but they are still vulnerable and threatened.

The survival of a colony of bats depends on there being a range of suitable summer roost sites, hibernation sites and feeding areas within a reasonable distance. For most species, these various sites must be linked by a more or less continuous network of linear features such as rivers, woodland edges and hedgerows, along which the bats commute from place to place (Limpens & Kapteyn 1991).



### 10.3 References

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