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STRUCTURAL REPORT ON BARNS AT BEACON FARM BEACON BROW ROAD SCALBY YO13 0PQ

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STRUCTURAL REPORT ON BEACON FARM, BEACON BROW ROAD, SCALBY, YO13 OPQ

Prepared by: Sam Brown, BSc (Hons)

Signed:

Date: 25/02/2019

Approved by: M C Blake, BSc, CEng, MICE, MCIHT, IMaPS
Director

Signed:

Date:

Issue	Revision	Revised by	Approved by	Revised Date

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1.0 INTRODUCTION

1.1 Details

Client This report has been prepared at the request of Mr Mick Paxton, acting on behalf of Mr Paul Cass, in consequence of acquiring planning permission.

Property Two Barns
Beacon Farm
Beacon Brow Road
Scalby
North Yorkshire
YO13 0PQ

East Barn (Front Face)

West Barn (Front Face)

Weather Dry, Sunny

1.2 This report is intended to record the general condition of the building and to make any recommendations for remedial works which we consider necessary under the terms of a Local Authority Improvement Grant.

1.3 All reference to orientation is as though viewed from the shared courtyard of the two barns (photos above taken from the courtyard).

2.0 BACKGROUND

Location Plan

2.1 This report is intended to record the general condition of the building and to make any recommendations for remedial works which we consider necessary under the terms of a Local Authority Improvement Grant.

2.2 This traditional loadbearing stonework property is situated on Beacon Farm on Beacon Brow Road. From inspection it appears that the external walls consist of two leaves of stone with rubble infill.

2.3 The two barn properties have pitches clay tiled roofs.

2.4 No detailed information is available for the foundations but it is anticipated the stonework walls are laid directly on the natural sub soils at a relatively shallow depth beneath the ground level.

2.5 The date of construction is not know for either barn however from inspection, it appears that the West barn was built after the East Barn.

3.0 INSPECTION

General

3.1 An inspection of the buildings concerned was made on 15th February 2019 covering both external and internal aspects and a detailed record was made of the state of the building. This, together with photographs, is being retained on the file for the property.

External

3.2 To the West gable end of the West barn there is evidence of wall movement at eaves level. (See photo 1)

3.3 At the gable end of the East Barn there is vertical cracking on the face of the lintel above the window. This is a clear sign the lintel has been overloaded and failed. Someone has attempted to repair the lintel with mortar. (See photo 2)

3.4 Stonework walls and lintels in both barns have suffered from erosion and certain stones in the wall have been eroded as far back as 50mm from the face of the wall. (See photos 3-7)

3.5 The troughs on the front elevation of the West barn have eroded, compromising the structure, and need replacing. (See photos 8-10)

3.6 There is a diagonal line of cracked mortar at the corner of the rear wall and East end gable. (See photo 10)

3.7 Slender timber lintels have been used above windows on the rear face of the East barn. (See photos 11 & 12)

3.8 At the north corner of the West Barn there is evidence of historical movement, indicated by the large gaps between the stonework. (See photo 13)

3.9 The wall at the rear elevation of the East barn is bulging outwards slightly. (See photo 14)

3.10 The lintel above the corner window (front face of the east barn) is slightly out of position. (See photo 15)

Internal

East Barn-

3.10 There are concrete floors present with a step approx 100mm difference in the floor levels.

3.11 The concrete floor and ceiling are of recent construction.

3.12 There are several cracks to the render finish of the central spine wall. The general direction is diagonal and it's origin is the bottom corner where the spine wall meets the rear external wall. (See photos 16-19). Cracks also present on the reverse side. (See photo 20)

3.13 The walls below 1m (above FFL) are generally in disrepair. Mortar joints have eroded and washed out. (See photos 21 and 22).

3.14 There was limited roof access. Inspection photos from the hipped roof show the main roof structure is of timber rafters spanning onto purlins and ridge beams. (See photo 23)

West Barn-

3.15 The barn is separated into three sections by two brickwork spine walls from front to rear. Stone floors are present throughout. Floor levels step to each section.

3.16 The corner wall of the West end gable section is in a bad condition. Mortar joints are receded and previous repairs attempted. (See photo 24)

3.17 The timber lintel in the West end gable section above doorway is overloaded. (See photo 25)

3.18 The timber lintel in the West end gable section above the troughs is overloaded. (See photo 26)

3.19 The Stone lintel above the window in West end badly corroded. (See photo 27)

3.20 In the central section the rear stone walls below 1m above FFL are receding and stonework appears to be corroding. (See photo 28)

3.21 The roof in the West Barn appears to be in good condition. No distress was visible at the time of survey. (See photos 29 and 30)

3.22 Stone walls badly deteriorated upto 1m above FFL within the East end section. Mortar joints have significantly receded resulting in large gaps between the stonework. Stonework has also eroded (See photos 31-33)

3.23 Significant stonework erosion or removal has resulted in a large hole in the corner where the rear wall meets the gable end. The hole has been filled with rubble fill. (See photo 34)

3.24 Timber infill used at eaves level in separating wall. (See photo 35)

3.25 A manhole cover is present in the corner of the East section at the gable end. It was not lifted and inspected. (See photo 36)

4.0 CONCLUSIONS

4.1 The receding mortar on the external face is due to weathering. On the internal face it is likely as a result of animal urine when housed indoors. The erosion also appears to have affected the structural integrity of some of the stone lintels.

4.2 The bulging of the central spine wall in the East barn is an area of concern. The roof above the East barn could have caused some movement and bulging in the spine wall. It was suggested by the property owner that roof was re-built some time ago. It is possible that the wall movement caused by the roof was a result of the previous roof construction. However this cannot be confirmed due to lack of access.

4.3 In the West barn at the corner of the rear wall and East gable, inspection of the exterior wall shows signs of slight movement. This will likely be due to historical settlement. The foundations likely consist of stone formed directly on the natural sub soils at an approximate depth of 300mm BGL. However this could not be confirmed as the foundations could not be exposed.

4.4 Within both barns timber lintels appear to have been used in both the exterior and internal walls. The timber lintels may have been used to replace stone lintels post construction.

4.5 There are several stone lintels in the exterior wall that show signs of suffering from weather erosion and previous repair.

4.6 The hole in the internal face of the corner of the East barn was likely cause by eroded stonework and settlement of the foundation. These factors would have resulted in the stonework cracking. They would have then been removed and replaced with rubble fill.

5.0 RECOMMENDATIONS

5.1 In the areas where the mortar has receded and eroded the walls require repointing. This applies to both internal and external faces of the stonework.
All cracked and severely weathered mortar joints should be raked out to a minimum depth of 30mm and be repointed with a mortar which will give some degree of flexibility such as a 1:1:6 (lime) or plasticised mortar. Any cracked, broken or severely weathered stone should be cut out and new units, of a similar pattern and material, be built in using a mortar similar to that as used in the repointing. When work is carried out adjacent to the damp proof course, great care should be taken to ensure that no damage is done to it or that no mortar bridges across it. All broken or severely weathered stone below the damp proof course should be cut out and be replaced with a good dense matching brick/stone built in cement mortar and the work is to be carried out in short lengths, so that the stability of the stonework above is not impaired.

5.2 To ensure further movement of the rear wall of the East barn does not occur, we recommend that the rear wall is tied back the central spine wall with Sockfix anchors from Helifix. The anchors should be installed as per manufacturer's recommendations.

5.3 All of the stone lintels that show signs of cracking, previous repair or erosion should be replaced with suitably designed lintels.

5.4 The stone lintel in above the doorway, detailed in point 3.10, should be pushed back into position.

5.4 All timber lintels present in both barns should be replaced with suitably designed lintels.

5.5 The corner of the rear wall and East gable in the west barn. At the time of the survey there was no evidence of active movement. The corner wall should be stitched back if possible with Sockfix anchors from Helifix or similar approved. However the movement is likely historic therefore repointing the wall should be sufficient.

5.6 It should be confirmed that the roof is sufficiently fixed to the top of the walls to ensure that the roofs are provided sufficient lateral restraint to the external walls.

6.0 LIMITATIONS

6.1 Our inspection and report are concerned with the structural aspects of the building, such as foundations, walls, floors and roof but we have not concerned ourselves with details of other elements such as doors, windows and other fittings. Similarly we have not commented on dampness or timber infestation or services such as electricity, plumbing, heating or drainage.

6.2 We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

6.3 No comment is made in the report as to the presence of new or old mine workings or tunnelling, heavy metals, chemical, biological, electromagnetic or radioactive contamination or pollution, or radon methane or other gases, underground services or structures, springs and water courses, sink holes or the like, noise or vibratory pollution, mould, asbestos and asbestos products.

6.4 Similarly, we make no comment on flood risk or previous flood events, invasive species of vegetation such as Japanese Knotweed, vermin or protected species, boundary conditions or materials, landscaping or any non-permanent structure.

6.5 The roof structure above the East barn was not visible therefore we cannot give any opinion on the condition of the materials, structural members and fixings.

6.6 For the avoidance of doubt, the Contracts (Rights of Third Parties) Act 1999 shall not apply to this contract.

APPENDIX A

Photographs

Photograph No. 1

Photograph No. 2

Photograph No. 3

Photograph No. 4

Photograph No. 5

Photograph No. 6

Photograph No. 7

Photograph No. 8

Photograph No. 9

Photograph No. 10

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Photograph No. 33

Photograph No. 34

Photograph No. 35

Photograph No. 36

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NYMNPA

02/01/2019

Preliminary bat roost assessment

Site Location	Beacon Farm, Scalby, Scarborough, YO13 0RB
Document reference	CE1196-01
Date of Survey	18th December 2018
Surveyed by	Garry Smith [Class 2 registration 2017-28032-CLS-CLS]

DISCLAIMER

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Validity of data

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

Executive Summary

Chase Ecology Ltd. undertook a Preliminary Roost Assessment (PRA) at the named site on the 18th December 2018. The aim of the assessment was to consider the value and suitability of the structures for roosting bats & nesting birds as detailed below;

Site Location	Beacon Farm, Scalby, Scarborough, YO13 0RB
Survey Methodology	An internal & external survey was carried out by Garry Smith for the potential roosting and usage of the structure for bats & nesting birds. See section 3 (Methodology). Additional to the visit further research has been carried out on the Magic.gov database and National Biodiversity Network
Results of Preliminary Bat Roost Inspection	SEE SECTION 6.0 Following the preliminary bat roost assessment carried out on the 18th December 2018 it has been identified that the building and surrounding environments offer value to bats for roosting, feeding & commuting. Although no direct evidence of bats was established at the time of the roost assessment we have noted a number of internal & external features which would support roosting which have not been fully ruled out. Use of an inspection camera was used within several internal and external crevices within safe reach where no evidence of bats or droppings was noted, however the lack of such evidence wouldn't fully confirm the lack of previous roosting. The building within its current form also offers several roosting opportunities for winter roosting, although no evidence was established. The site is located close to suitable habitats of value for bats including woodland, fields, parkland, hedgerows and waterbodies of which all support feeding & commuting. An EPS Mitigation Licence for Common Pipistrelle, Brandt's and Whiskered bats has been identified 1.30km away from the building.
Evidence of Nesting Birds	Previous evidence of nesting birds identified within the far West section of the building internally.

Requirements for Additional Survey	It is advised that to fully establish if bats are using the building a further emergence and re-entry visit would need to take place. This should be carried out between May – September with at least one within the optimal period of May to August inclusive. Dependant on the level of activity a 3rd survey may be required to support the requirements for a European Protected Species mitigation licence if bats are to be disturbed from any planned development.
Predicted Impacts of Development on Bats and Nesting Birds	Further assessment required
Mitigation and Compensation of Proposed Impacts	Not at this stage
Licensing Requirements for Bats	Not at this stage
Required Actions	See section 6.0

CONTENTS

1.0 Introduction

Brief

1.1 This report will present the findings of a preliminary bat roost assessment and nesting bird survey of the named site and further research of the area online.

Site description

1.2 A single storey farm style out building located at Beacon Farm, Scalby, Scarborough, YO13 0RB which is currently in use for storage and dog kennel

The site is located close to suitable habitats of value for bats including woodland, fields, parkland, hedgerows and waterbodies of which all support feeding & commuting.

Proposed works

1.3 For conversion of the current building identified within section 4.0 & 5.0 of this report.

2.0 Legislation

2.1.1 All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017, making it an offence to:

- Deliberately kill, injure or capture a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place

2.1.2 In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly Obstruct access to any structure or place which any bat uses for shelter or protection; or Disturb any bat while occupying a structure or place which it uses

2.1.3 If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard bats.

2.1.4 In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended). All wild birds, their nests and eggs are protected it an offence to: • kill, injure, or take any wild bird; • take, damage or destroy the nest of any such bird whilst it is in use or being built; or • take or destroying an egg of any such wild bird.

2.1.5 Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

3.0 METHODOLOGY

3.1 All survey and reporting undertaken by Mr Garry Smith who is an experienced licensed bat ecologist in England [Class 2 registration 2017-28032-CLS-CLS] with over 8 years' experience practical of professional ecological surveys.

3.2 Preliminary roost assessments can be undertaken throughout the year and can provide conclusive results, which can save expense and time for Planning Applicants. The optimum time to investigate for the presence of bats is during their active season when signs of presence can be more easily located.

3.3 A thorough interior and exterior inspection of the building for bat roosting and potential roosting features was undertaken. Signs surveyed for included droppings, dead bats, feeding remains (beetle, moth and butterfly remains), urine staining and grease marks around crevices and down walls, and any noises such as scratching and audible bat calls.

3.4 During the survey, the surrounding area was assessed in relation to suitable habitat that may be of value to bats.

3.5 Surveys were conducted following "The Bat Workers Manual "(JNCC 2004), "The Bat Mitigation Guidelines" (EN 2004) and the Bat Conservation Trust 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (2016) recommendations.

3.6 All areas of the building internally were inspected with the aid of a 2 million c/p lamp and inspection camera. External features were also inspected where possible and observations were aided with binoculars where needed.

3.7 A desk top survey was also completed to establish the biodiversity of the area along with its habitat structures including statutory and non-statutory designations

3.8 Biological records were not obtained for this survey

4.0 Results

Desk Study
Environmental record search

4.1 A data search from freely available resources was undertaken to assess the names species for distribution/record within a 2km study area which demonstrated records for Common Pipistrelle.

4.2 Designated sites;

Statutory (5km)

Site	Designation	Distance (km)	Direction
HACKNESS HEAD	SSSI	3.20	SW
HACKNESS ROCK	SSSI	3.20	SW
RAINCLIFFE & FORGE VALLEY WOODS	SSSI	4.00	S
IRON SCAR & HUNDALE POINT TO SCALBY NESS	SSSI	4.20	NE
COCKRAH WOOD	SSSI	4.70	SW

Non-Statutory (2km)

Site	Designation	Distance (km)	Direction
NON-IDENTIFIED			

Priority Habitat Inventory within 2km

HABITAT	Distance (km)	DIRECTION
DECIDUOUS WOODLAND	0.20	SW
DECIDUOUS WOODLAND	0.70	S
DECIDUOUS WOODLAND	0.80	NW
DECIDUOUS WOODLAND	0.95	NW
DECIDUOUS WOODLAND	1.00	NE
DECIDUOUS WOODLAND	1.20	N
DECIDUOUS WOODLAND	1.32	NW
DECIDUOUS WOODLAND	1.45	SW
DECIDUOUS WOODLAND	1.70	NE
DECIDUOUS WOODLAND	1.85	SE

None of the above names sites/locations would be effected in any way from the proposed development plan for this site, including both habitats and species.

4.3 Aerial photographs of the site were consulted to determine if there are important landscape features surrounding and within vicinity of the site.

4.4 A search of previous Granted European Protected Species Applications revealed ONE granted European Protected Species applications

- 1.30km – North/West – Common Pipistrelle, Whiskered, Brandt's

Field study

4.5 A site visit was completed on the 18th December 2018 by Garry Smith [Class 2 registration 2017-28032-CLS-CLS] where the dwelling and surrounding areas were assessed for the possible usages of bats & birds.

External

4.6 A full external assessment was carried out visually around the property including checks to the stonework's & roof structures where accessible.

The building which is currently in use for storage and dog kennel is connected to the main house at the far East of the building with no current access between.

The building has a traditional stone/tile build.

The stonework's externally around the building demonstrated a fair condition for the age with several crevices (Image 2, 6) which would offer value to crevice dwelling bats for day roosting.

To the South/East facing elevation the building the stonework's offer trough style gaps which give access internally.

Gaps to the doors (Image 1, 2, 6) leading into the building demonstrated suitable access points for bats and birds into the internal features for roosting/nesting.

Where the roof coverings sit upon the stonework's a number of further access opportunities for bats have been identified (Image 3, 4) which offer access internally.

The use of Pantiles across the roof coverings demonstrated multiple gaps (Image 1, 3, 4) across both facing elevations from deterioration/damage caused by age. These features looked to offer roosting availability for crevice dwelling bats along with access within the internal areas of the building for both void & crevice dwelling bats.

The ridge tiles across the building looked to have been maintained over tile with only a small number of gaps within identified with offer further value to crevice dwelling bats.

The site is located close to suitable habitats of value for bats including woodland, fields, parkland, hedgerows and waterbodies of which all support feeding & commuting.

Internal

4.7 Internally the building is split into three sections with the mid-section in current use for housing dogs.

The floor coverings to the mid-section demonstrated straw/hay which looked to be maintained where any previous evidence of bats would have been discarded.

The stonework's internally demonstrated several areas of deterioration leading into suitable roosting environments for crevice dwelling bats (Image 10)

Where accessible and within reach a number of internal crevices within the stonework's have been assessed further with the aid of an inspection camera which demonstrated suitable environments for bats, however no evidence was identified within.

From below the roof coverings several areas of protruding (Image 7, 8, 9) can be observed of size which offer further access opportunities for bats to access the internal features of the building.

Several gaps and protruding daylight can also be noted between the stonework's and tiled coverings.

The floor areas to the far East of the building demonstrated a level of usage for cattle and in a condition, which has restricted visibility of any previous evidence of bats such as droppings or feeding remains.

Timbers below the tiled coverings (Image 7, 8, 9) can be seen throughout the building which in areas restrict the visibility of the underside of the coverings and also support further roosting values.

Evidence of previous nesting birds has been noted within the far West section of the building in which a level of mitigation/enhancement would be required where development may remove access within these areas.

Customer has also been made aware of the implications and protection to nesting birds.

5.0 Plans & Photographs

Image 1 – South/East facing elevation of the building which demonstrated a Pantile covering to the roof area which looks to offer multiple areas of value to bats along with trough style gaps within the stonework's offering access internally

Image 2 – South/West facing elevation of the building where an area of deterioration and stable stile door which offer suitable access opportunities for bats to gain access to the internal features within the building

Image 3 – North/West facing elevation of the building demonstrating areas of deterioration/damage to the roof coverings

Image 4 – North/West facing roof coverings which offer value to bats with access into the internal areas of the building

Image 5 – Movement noted within a number of ridge tiles which offer suitable roosting opportunities for crevice dwelling bats

Image 6 – North/East facing elevation of the building in which deterioration has been noted within the stonework's which offer suitable roosting values for crevice dwelling bats within

Image 7 – Below the roof coverings where a number of gaps within the coverings of ample size for bats have been identified, also additional timber coverings below

Image 8 – Further views from below the roof coverings within the building

Image 9 – Further views from below the roof coverings within the building in which daylight can been seen above the stonework's

Image 10 – Internal stonework's within the far East area of the building in which a number of suitable roosting areas for crevice dwelling bats have been noted where areas have been patched up and deterioration.

Image 11 – Surrounding environments close to the building

6.0 Conclusion and recommendations

All recommendations provided in this section shall be on Chase Ecology Ltd's current understanding of the site proposals and current planning application, correct at the time the report was compiled. Should any aspect of the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate

6.1 Following the preliminary bat roost assessment carried out on the 18th December 2018 it has been identified that the building and surrounding environments offer value to bats for roosting, feeding & commuting.

6.2 Although no direct evidence of bats was established at the time of the roost assessment we have noted a number of internal & external features which would support roosting which have not been fully ruled out.

6.3 Use of an inspection camera was used within several internal and external crevices within safe reach where no evidence of bats or droppings was noted, however the lack of such evidence wouldn't fully confirm the lack of previous roosting.

6.4 The building within its current form also offers several roosting opportunities for winter roosting, although no evidence was established.

6.5 The site is located close to suitable habitats of value for bats including woodland, fields, parkland, hedgerows and waterbodies of which all support feeding & commuting.

6.6 An EPS Mitigation Licence for Common Pipistrelle, Brandt's and Whiskered bats has been identified 1.30km away from the building.

6.7 It is advised that to fully establish if bats are using the building a further emergence and re-entry visit would need to take place. This should be carried out between May – September with at least one within the optimal period of May to August inclusive.

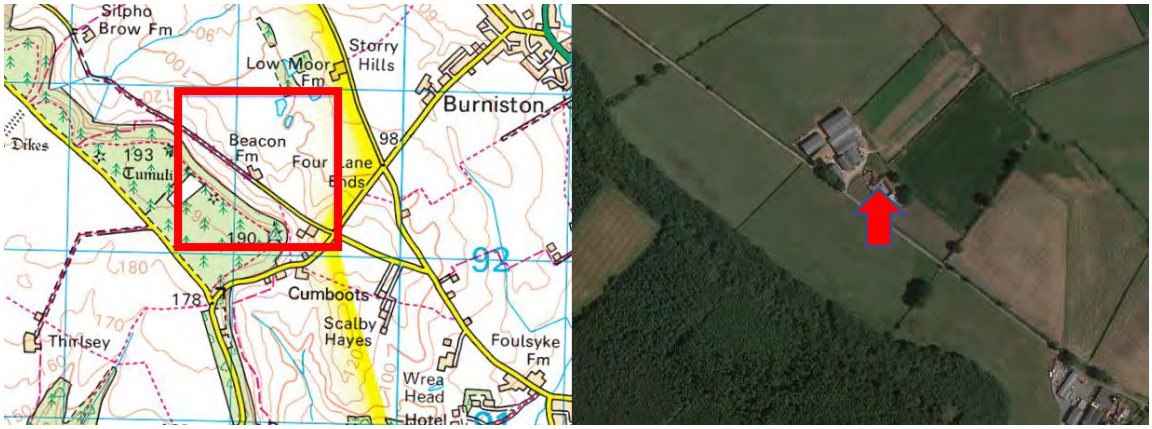
Dependant on the level of activity a 3rd survey may be required to support the requirements for a European Protected Species mitigation licence if bats are to be disturbed from any planned development.

6.8 It is advised that no further works take place to the building at this stage as this may cause disturbance to any roosting bats, see section 2.0 of this report

7.0 References

- Mitchell-Jones, A.J, & McLeish, A.P. Ed., (2004) 3rd Edition Bat Workers' Manual. Joint Nature Conservation Committee, Peterborough.
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. Natural England, Peterborough.
- British Trust for Ornithology (2016) www.bto.org/
- Magic database (2017) http://www.magic.gov.uk/MagicMap.aspx accessed on 08/03/2017.
- Google Earth (2017)

Appendix 1: Location plan



Appendix 2: Below flow chart taken from the Bat Conservation Trust, Good Practice Guidelines used when assessing the suitability of a structure and any additional survey requirements.

Bat Conservation Trust

Figure 5.1 Flow chart illustrating the process used to establish which types of surveys are necessary for roosts in structures.