

**Protected Species Survey of Outbuildings at Village Farm,  
Elsham Top, Wootton Road, Elsham Wolds, Brigg  
DN20 0NU**

**October 2017**



**Andrew P. Chick MPhil ACIEEM  
Ecological Consultant**

The Old Farmhouse, Washdyke Lane, Fulbeck,  
Grantham, Lincs NG32 3LB  
Tel: 07880700313  
E-mail: [andrew@forktail.co.uk](mailto:andrew@forktail.co.uk)

Report Prepared by Andrew Chick

*--- Page left blank ---*

## Protected Species Survey of Outbuildings at Village Farm, Elsham Top, Wootton Road, Elsham Wolds, Brigg DN20 0NU

### CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>5</b>
1.1	Accurate lifespan of ecological data	5
<b>2</b>	<b>SITE DESCRIPTION</b>	<b>5</b>
2.1	Site communities and habitats	5
2.2	Survey building	7
2.3	Associated buildings and habitat	8
2.4	Proposed work	8
<b>3</b>	<b>METHODS</b>	<b>8</b>
3.1	Data search	9
3.2	Bats	9
3.2.1	Bat tree survey	9
3.2.2	Bat activity survey	10
3.3	Common species of birds	10
3.4	Schedule 1 species of birds (Barn Owls)	10
3.5	Badgers	10
3.6	Other statutorily protected species	10
<b>4</b>	<b>RESULTS</b>	<b>10</b>
4.1	Data search	10
4.2	Habitats and plant species	11
4.3	Bats	11
4.3.1	Bat tree survey	13
4.4	Birds	14
	Schedule 1 species of birds (Barn Owls)	14
4.5	Badgers	14
4.6	Other statutorily protected species	14
<b>5</b>	<b>DISCUSSION AND RECOMMENDATIONS</b>	<b>15</b>
5.1	Habitats	15
5.1.1	Recommendations	15
5.2	Bats	15
5.2.1	Legal protection	15
5.2.2	Recommendations	16
5.2.3	Conservation recommendations	16
5.2.4	Recommendations – Trees	17
5.2.5	Recommendations - lighting	17
5.2.6	Summary of potential suitability for bats	17
5.3	Badgers	17
5.3.1	Legal protection	17
5.3.2	Requirement for further work	18
5.4	Birds	18
5.4.1	Legal protection	18
5.4.2	Recommendations	18
5.4.3	Conservation measures – Barn Owls	19
5.5	Further survey recommendations	19
5.5.1	Ecological walk-over	19
5.5.2	Nesting birds	19
<b>6</b>	<b>REFERENCES</b>	<b>19</b>
	<b>APPENDIX 1</b>	<b>20</b>
	Procedure to follow if bats are discovered during works	20
	<b>APPENDIX 2</b>	<b>21</b>
	Tables; Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins J, The Bat Conservation Trust (2016).	21
	<b>APPENDIX 3</b>	<b>23</b>
	Examples of bat boxes	23

## PHOTOGRAPHS

Photograph 1: Representative images showing the open-fronted elevations.	7
Photograph 2: Representative images showing the rear elevations.	7
Photograph 3: Representative images showing the internal ceiling and roof apex.	7
Photograph 4: Representative image of ridge tile.	11
Photograph 5: Representative image of the concrete buttresses.	11
Photograph 6: Representative image of clay tiles.	12
Photograph 7: Representative image of the eaves.	12
Photograph 8: Representative image of the southwest gable end.	12
Photograph 9: Representative image of brickwork.	12
Photograph 10: Representative image of brickwork	13
Photograph 11: Representative images showing the ash [T1] (left) and two of the pedunculate oaks [T3 and T4] (right).	13
Photograph 12: Representative image showing an old swallow nest.	14

# **Protected Species Survey of Outbuildings at Village Farm, Elsham Top, Wootton Road, Elsham Wolds, Brigg DN20 0NU**

## **1 INTRODUCTION**

Independent Ecologist and Protected Species Consultant, Andrew Chick MPhil, was commissioned by Mr A Allison (Ryland Design) to undertake a protected species survey of outbuildings at Village Farm, Elsham Top, Wootton Road, Elsham Wolds, Brigg DN20 0NU. The survey is required in connection with a future planning application with North Lincolnshire Council.

This report details the methods used, describes the habitats and species found on the site, discusses the results and makes recommendations for further work. The common English names are used for all species referred to throughout the text. The Latin name is also given following the common name the first time the species is referred to.

### **1.1 Accurate lifespan of ecological data**

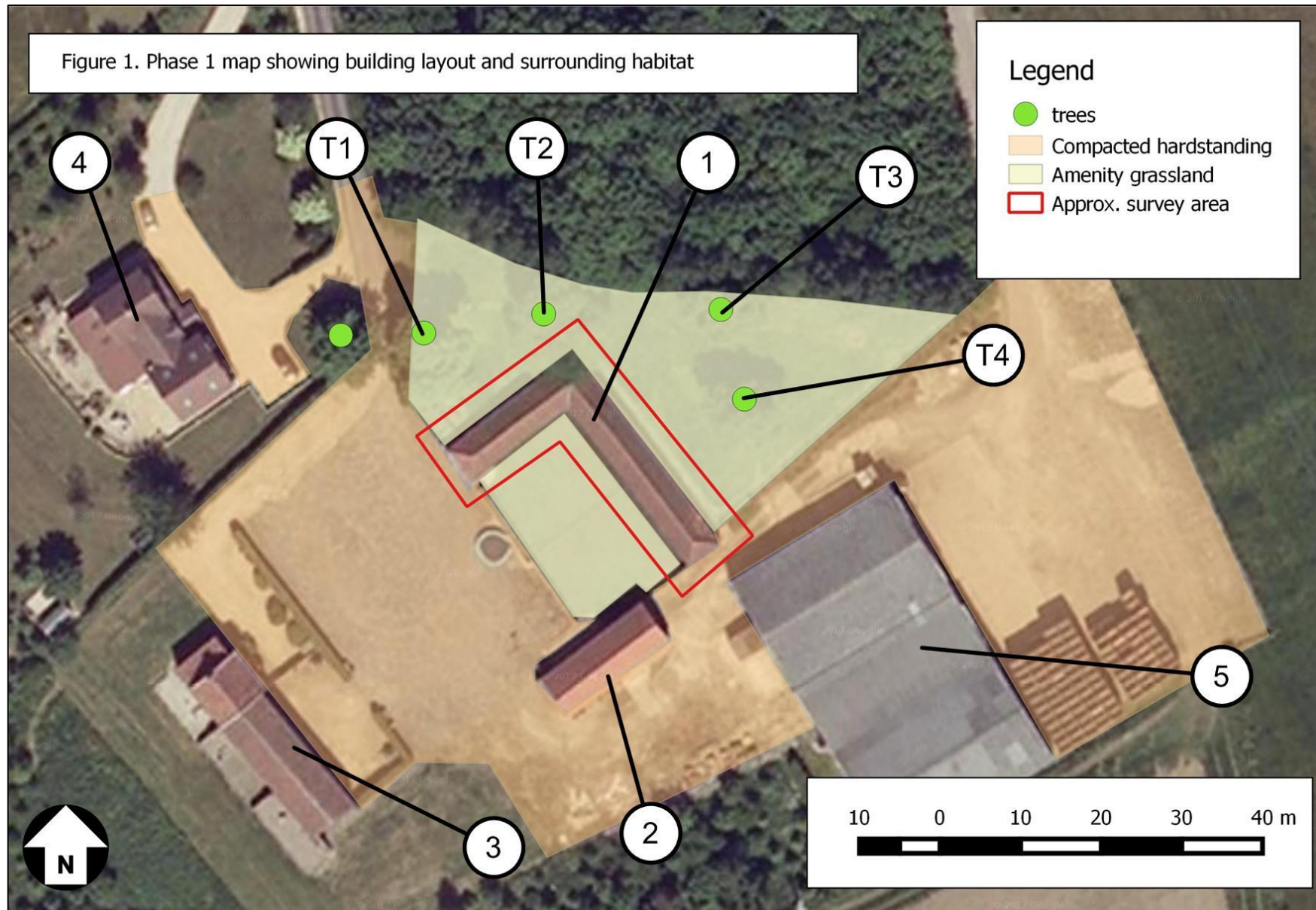
The majority of ecological data remains valid for only short periods of time due to the inherently transient nature of the subject. Where the species/group being surveyed for is present within the site, the data is considered to be accurate for two years. However, an update may be needed in order to obtain a European Protected Species licence, if such a licence is required. Where absent, although the data is considered accurate for two years, an update may be required if the habitats surrounding the site are of a quality that are likely to encourage the species to move into the site in the interim.

## **2 SITE DESCRIPTION**

### **2.1 Site communities and habitats**

The survey building forms part of a wider grouping of converted brick and former agricultural buildings collectively known as Village Farm. The site is situated at National Grid Reference (NGR) TA 041 140, c1.5km north of the village of Elsham, in North Lincolnshire. Access is via a driveway, complete with gated entrance, leading from a minor road that connects to the B1206, located north of the site. The A15 dual-carriageway is located c200m to the east of the survey site.

The immediate area is dominated by compacted hardstanding and amenity grassland, with an area of broad-leaved woodland to the north of the survey site. The wider landscape is dominated by open intensively farmed arable land. A general site location is given in Figure 1 and shows the approximate survey boundary (marked with a red line). Annotated buildings and features shown on the map are referred to in the text.



## 2.2 Survey building

The survey building is a large, open-fronted cart shed constructed mostly from solid bricks and supporting a timber-framed roof which is covered with clay pantiles. The building layout is L-shaped and consists of eight open-bays facing southwest and five facing southeast. At both ends the building is half-hipped with the ridge tiles running down to eaves level. Within the southwest elevation there is a timber clad storage room with a pressed metal roof. The building is fully open to the apex with no roof voids, no underfelt and no boarding; enabling a full and detailed inspection of the underside of the roof and the ridge tile.



**Photograph 1: Representative images showing the open-fronted elevations.**



**Photograph 2: Representative images showing the rear elevations.**



**Photograph 3: Representative images showing the internal ceiling and roof apex.**

Generally the brickwork was found to be in a good state of repair, with several sections appearing to have been repointed/repared and a number of the timbers repaired/replaced in the recent past (c10 years). At the rear of the building a series of concrete buttresses were found to be supporting the back wall, with occasional Maidenhair Spleenwort *Asplenium trichomanes* growing in the associated brickwork.

### 2.3 Associated buildings and habitat

Immediately to the south of the survey building is a converted brick building [2] with a row of dwellings located opposite [3] and a large farmhouse [4] to the west. To the east of the building and accessed via a separate track is a large modern agricultural building.

To the front of the building is an area of mown amenity grassland that is dominated by short sward rye-grass *Lolium perenne*, with occasional selfheal *Prunella vulgaris*, dandelion *Taraxacum officinale* agg., common chickweed *Stellaria media* and daisy *Bellis perennis*. To the rear of the building is a further area of grassland which is surrounded by a timber post and rail fence creating a small paddock. Within the paddock is a single mature ash *Fraxinus excelsior* [T1] and three mature pedunculate oaks *Quercus robur* [T2, T3 and T4].

### 2.4 Proposed work

The proposed work entails the internal conversion of the survey building into two domestic dwelling.

## 3 METHODS

The site was surveyed on 4<sup>th</sup> October 2017 by Andrew Chick (NE bat licence no. 2015-15161-CLS-CLS and 2015-15162-CLS-CLS (Class 1 & 2) and NE great crested newt licence no. 2015-8470-CLS-CLS). All habitats and plant communities within and adjacent to the site were recorded and mapped. Representative photographs were taken.

During the initial appraisal of the site the protected species considered likely to occur on site were identified. These were:

- Bats
- Common species of birds
- Schedule 1 Species of bird – Barn Owls
- Badgers

The methods used to survey for these species are detailed below.

### 3.1 Data search

The NBN (National Biodiversity Network) Gateway website was consulted to check for records of protected species from the area.

### 3.2 Bats

Aided where necessary by the use of a powerful torch ('Clulite CB2' 1,000,000 candlepower) and ladders, a visual search was made internally and externally of all cracks and fissures in the walls and the undersides of the roofs of all structures on site for bats. Where accessible, all undisturbed surfaces were inspected for evidence of past and present occupation by bats in the form of: droppings, urine or fur staining, feeding remains, scratch marks and the bodily remains of bats.

#### 3.2.1 Bat tree survey

Trees on and adjacent to the proposed development site were assessed for potential suitability for bat roosts by means of a walkover survey. All trees were inspected to assess their potential to hold bat roosts; the following signs were looked for:

- Holes, frost cracks, splits in branches/trunk
- Fissures, hollow sections of trunk, branches and roots
- Broken Limbs and loose bark
- Dense ivy
- Urine staining, droppings, fur rubbing and scratch marks
- Audible squeaking, strong smell of ammonia and flies around potential access points

The trees were inspected with the aid of close focusing binoculars (Swarovski EL 8x32 SV). Bat surveys of trees can be undertaken throughout the year.

A scoring system was applied to the trees using the following criteria.

#### **Low probability of bat interest.**

Trees with low bat interest are usually young trees without any deadwood or holes.

#### **Medium probability of bat interest.**

Trees in this category will have holes, cracks and crevices and loose bark suitable for roosting bats but no obvious roost signs such as staining and droppings at entrances.

#### **High probability of bat interest.**

Trees within this category will contain all the obvious roost features such as holes, cracks and crevices and loose bark and will also contain staining and droppings at the roost entrance or have been identified as a roost via a visual sighting of an exiting bat. (A licence is normally required for removal/development.)

### **3.2.2 Bat activity survey**

A bat activity and emergence survey could not be carried out as October is outside of the bat active season (which runs from April until late-September). During the colder months of the year bats spend their time in hibernation, with intermittent activity coinciding with milder weather.

### **3.3 Common species of birds**

All habitats were assessed for their potential to support nesting birds. All bird species seen or heard were noted. All disused and active nests were recorded.

### **3.4 Schedule 1 species of birds (Barn Owls)**

An inspection was made of the building for the presence of barn owls and the signs indicative of their past or present use. These signs include:

- Regurgitated pellets
- Faecal deposits
- Feathers
- Discarded prey items

The places that could potentially be used as breeding locations, including roof voids and horizontal surfaces at first floor level, were also checked for any signs of current or former nesting attempts. These signs included brooding adult birds, concentrations of accumulated flattened pellet nest debris, faecal encrustation, eggs or eggshell remains, surplus prey items, bodily remains of chicks or infant down feathers.

### **3.5 Badgers**

The survey site and within a 30m distance of the survey site boundary were searched for signs of the presence of badger setts, footprints, padways, feeding signs and latrines.

### **3.6 Other statutorily protected species**

As part of the extended walkover of the site and its environs, a search for signs of use by other statutorily protected species was also undertaken. Particular attention was focused on the habitats and plants and the presence of any ponds.

## **4 RESULTS**

### **4.1 Data search**

The National Biodiversity Network (NBN) [www.nbn.org.uk](http://www.nbn.org.uk) was searched for records of protected species within the 10km OS grid square TF01.

#### 4.2 Habitats and plant species

The habitat types and plant species recorded within the site during the survey on 4<sup>th</sup> October 2017 are common and widespread in North Lincolnshire and the region as a whole, with no habitats or plants of local importance or significance found. None of the plant species recorded on site appear on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). No nationally rare or scarce plants as defined by Wiggington (1999) and Stewart *et al* (1994) respectively were found.

#### 4.3 Bats

No bats or signs of bats were found in the survey building. **The construction and fabric of the building was considered to offer limited potential to support roosting bats.**

A number of niches were identified on the external fabric of the building, in particular niches created by failed mortar joints between brickwork and wooden lintels, niches where the roof timbers tied into the stonework and settlement cracks. Where necessary these features were accessed by a ladder and searched utilising an endoscope. **There was no positive evidence recorded to suggest use of any of these by bats.**

A search of the interior and exterior of the building noted a range of features. Where required these features were accessed by ladders and searched (utilising an endoscope if needed). There was no positive evidence recorded to suggest use of any of these by bats.

##### Photograph 4: Representative image of ridge tile.

The majority of the ridge tile is in a good state of repair. In a few places the bedding mortar is missing offering bats potential access. However, the underside of the ridge is exposed, with very limited roost potential.



##### Photograph 5: Representative image of the concrete buttresses.

The rear wall of the eight-bayed section has a series of concrete buttresses. A detailed inspection found no gaps, cracks or niches between the concrete and the brickwork.



**Photograph 6: Representative image of clay tiles.**

There were occasional lifted tiles on the front and rear elevations of the survey building. However, the gaps did not lead to any internal void and there was no underfelt to provide a suitable roost area.

**Photograph 7: Representative image of the eaves.**

The eaves at the front of the building were formed with a timber beam. At the rear elevation there were no gutters and the tiles sat directly onto the brickwork. Occasional gaps between the brickwork and tiles were observed, but these lead directly to the wall plate with no internal void present.

**Photograph 8: Representative image of the southwest gable end.**

The southwest gable end of the building is the only section with a traditional stone wall. There is a timber beam at the wall plate which was inspected. There was no evidence of use by bats.

**Photograph 9: Representative image of brickwork.**

Generally the internal and external brickwork was in a good state of repair with very few gaps, cracks and no significant settlement cracks.



**Photograph 10: Representative image of brickwork**

In areas (particularly associated with the front elevation) the brickwork had been repointed consequently offering very limited potential to support roosting bats.



The survey site is considered likely to be used generally for foraging by bats. Roosting by bats is additionally likely to occur in the surrounding buildings given the presence of moderate feeding habitat in the form of mature gardens. No assessment was made for the presence of any foraging bats as October is outside of the bat active season.

**4.3.1 Bat tree survey**

To the rear of the building and within the paddock area there is single mature ash [T1] and three mature pedunculate oaks [T2, T3 and T4]. Under the proposals none of the trees will be affected by the intended works. All four trees were assessed as having medium potential to support bats.

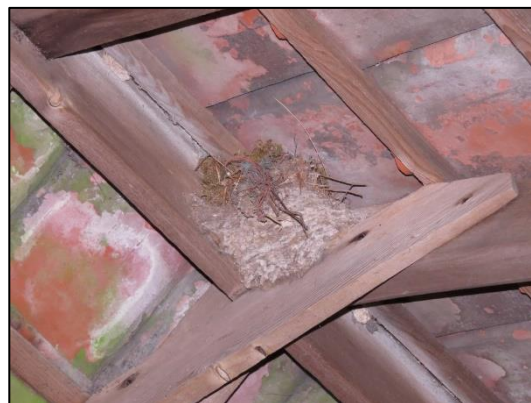


**Photograph 11: Representative images showing the ash [T1] (left) and two of the pedunculate oaks [T3 and T4] (right).**

#### 4.4 Birds

A typical assemblage of common British birds was recorded on the site and in the immediate environs of the site.

An old swallow *Hirundo rustic* nest which had subsequently been commandeered by a wren *Troglodytes troglodytes* was recorded in the roof apex.



**Photograph 12: Representative image showing an old swallow nest.**

No active nests were located during the survey on 4<sup>th</sup> October 2017.

#### **Schedule 1 species of birds (Barn Owls)**

No barn owls were seen during the course of the daylight survey, no **evidence** of either current or past roosting by this species was found within the survey building.

The flat roof space on top of the timber store was considered to have some small potential to support breeding barn owls, although no evidence was found.

#### 4.5 Badgers

No evidence of badgers was found within the actual survey area. There were some tracks in the rear paddock, which may be attributed to badger, but were considered more likely to be rabbit. No setts were found within the survey area, and none were found in the land adjacent.

To the rear of the site is an area of broad leaved woodland which is unaffected by the proposed works; this area was not inspected for badgers.

#### 4.6 Other statutorily protected species

No ponds were found in the immediate environs of the survey site and no ponds were located on the local Ordnance Survey 1: 25 000 scale map.

The nearest waterbody was located at TA 03832 13448 (associated with a water treatment works), at a distance of approximately 600 metres southwest of the survey site and separated by arable fields. If the proposed development involves disturbance only within the current buildings, hardstanding and amenity grassland then no further survey is considered necessary. Given all of these findings, overall the potential for other statutorily protected species likely to be affected by the development is considered to be very low and no further work is recommended.

## 5 DISCUSSION AND RECOMMENDATIONS

All recommendations provided in this section are based on the current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

### 5.1 Habitats

#### 5.1.1 Recommendations

The site comprises amenity grassland and compacted hardstanding. The hardstanding is of negligible ecological value and the amenity grassland is of low intrinsic ecological value. Overall the site is considered to be of low ecological value and the proposals are not considered likely to give rise to an adverse ecological impact.

### 5.2 Bats

#### 5.2.1 Legal protection

In England, Scotland and Wales, all bats are strictly protected under the Wildlife and Countryside Act 1981 (and as amended); in England and Wales this legislation has been amended and strengthened by the Countryside and Rights of Way (CROW) Act 2000.

Bats are also protected by European legislation; the EC Habitats Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 – often referred to as 'The Habitat Regs'. Taken together, all this legislation makes it an offence to:

- Deliberately capture (or take), injure or kill a bat
- Intentionally or recklessly disturb a group of bats where the disturbance is likely to significantly affect the ability of the animals to survive, breed, or nurture their young or likely to significantly affect the local distribution or abundance of the species whether in a roost or not
- Damage or destroy the breeding or resting place of a bat
- Possess a bat (alive or dead) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost
- Sell (or offer for sale) or exchange bats (alive or dead) or parts of bats

A roost is defined as being 'any structure or place that is used for shelter or protection', and since bats regularly move roost site throughout the year, a roost retains such designation whether or not bats are present at the time.

### 5.2.2 Recommendations

The search of the internal areas and the exterior of the building recorded no evidence of bat activity in any area. The open-fronted section is of a construction detail that is on occasions utilised by roosting bats, including habitat associated with the ridge board and ridge tiles and also with cavities behind timber features set into the internal walls. **Despite this the search of the area found no evidence of bat use.**

The survey indicates that the survey building is not used as an established long term roost site by bats. The survey results indicate that the building is not key to the overall conservation status of bats in the local area and the development of the building would not alter the ability of bats to survive and reproduce; therefore there is no constraint on the development of the building and no requirements for any mitigation or further survey work. The 'ecological functionality' of bats in the local area will not be adversely affected by the development of the survey building.

Bats can occupy the smallest of spaces which cannot easily be inspected. It is recommended, as a **precaution**, that all contractors are warned of the possibility of finding bats and informed that they must stop work at once if they see bats or suspect that they are present. A procedure to follow in the unlikely event of finding a bat is given as Appendix 1.

It is also recommended, again as a precaution, that work does not commence in the time period between the beginning of October and the middle of April in order to avoid any potential disturbance to hibernating bats.

The building is exposed and well lit which reduces the potential for a significant long term bat roost to occur within it. There were very few features (no roof void and no underfelt) which were considered to offer any potential for use by bats in the building. It is considered that no mitigation is required ahead of work to redevelop the building and there is no requirement for a Natural England European Protected Species licence. With respect to this building, no further survey work is considered necessary and it is not considered necessary to work to a Method Statement.

Further, given it was possible to survey the entire structure in fine detail, it was considered that no requirement for any further survey effort, in the form of dusk emergence or dawn re-entry surveys, as these would not reveal any additional information of significance.

### 5.2.3 Conservation recommendations

A positive conservation recommendation would be to install a number of bat boxes in the trees to the rear of the building ahead of the start of works. It is recommended that three bat roosting boxes could be affixed onto mature trees by a bat ecologist in the close vicinity of the building prior to the start of any work. Examples of suitable bat boxes can be found in Appendix 3.

The bat roosting boxes will provide suitable roosting habitat for common species of bats, with details as follows:

- Three bat boxes affixed onto trees associated with the survey site (with Schwegler 1FF boxes recommended).
- Schwegler bat roosting boxes are made from 'Woodcrete', a long lasting material and a specification suitable for use on trees.
- The bat roosting boxes will be positioned on mature trees in accordance with best practice methods. The bat boxes will be positioned at least 12 feet above the ground.

#### **5.2.4 Recommendations – trees**

Under the proposed scheme none of the trees on site are affected by the planned works. However, should the plans change then any trees affected by the proposals should be individually surveyed and further advice should be given.

#### **5.2.5 Recommendations - lighting**

The ecological effect of artificial lighting in the countryside is a topic of increasing concern. Recent estimates have shown a 24% increase in light pollution in the UK between 1993 and 2000. Lighting schemes can damage bat foraging habitat directly through loss of land and fragmentation, or indirectly by severing commuting routes from roosts.

It is recommended that any proposed security lighting on site is placed as far from the boundary as possible, and that light spillage onto gardens and the surrounding landscape is avoided by using shields to direct the light. The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps. The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. **A sensor should also be used, to provide some dark periods on site.**

#### **5.2.6 Summary of potential suitability for bats**

The building was assessed as having low/negligible potential to support a site for bat roost potential (BRP). The results are based on the features outlined in Table 4.1 from the 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' 3rd edition, Collins J, The Bat Conservation Trust (2016) and reproduced in Appendix 2.

### **5.3 Badgers**

#### **5.3.1 Legal protection**

Badgers are legally protected under The Protection of Badgers Act 1992.

Under this piece of legislation it is an offence:

- To wilfully kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so;
- To recklessly or deliberately interfere with a sett by damaging or destroying it;
- To recklessly or deliberately obstruct access to, or any entrance of, a badger sett;
- To disturb a badger when it is occupying its sett.

A badger sett is defined in the legislation as 'any structure or place which displays signs of current use by a badger'. If a sett is clearly unused and has been so for a period of 12 months or more then it can be considered disused and it falls outwith the Protection of Badgers Act 1992.

Any sett disturbance/destruction must only be carried out under licence from Natural England, the Statutory Nature Conservation Organisation.

### **5.3.2 Requirement for further work**

No badger setts or field signs were found on the site or within 30m of the survey site. No further survey work and specific mitigation will be required.

However, it is considered that badgers are likely to be present within the vicinity of the survey site, with the potential to be attracted to forage over the grassland (particularly to the rear of the building and associated with the woodland edge) for earthworms, their primary food source. Therefore good working practices should be adhered to during any future development work, with any trenches covered overnight and any pipes over 200mm in diameter capped off at night.

## **5.4 Birds**

### **5.4.1 Legal protection**

All common wild birds are protected under The Wildlife and Countryside Act 1981 (and as amended). Under this legislation it is an offence to:

- Kill, injure or take any wild bird
- Take, damage or destroy the nest of any wild bird while it is in use or being built
- Take or destroy the egg of any wild bird

Certain rare breeding birds are listed on Schedule 1 of The Wildlife and Countryside Act 1981 (and as amended). Under this legislation they are afforded the same protection as common wild birds and are also protected against disturbance whilst building a nest or on or near a nest containing eggs/unfledged young.

### **5.4.2 Recommendations**

Since the building is clearly used for nesting by species of common birds, any future redevelopment building work should ideally avoid the active nesting season. If work

commences during the bird breeding season, a search for nests should be carried out before commencing work, and active nests should be protected until the young fledge.

#### **5.4.3 Conservation measures – Barn Owls**

The local area is known to support breeding barn owls although none were found on site during the October 2017 survey. The survey building had very few features that could potentially be used by barn owls in the future. However, there needs to be some safeguard in place such that if any barn owls attempt breeding inside the survey building in the future, there will be no risk of breaching the legislation as the result of any future development on site. Therefore if no work starts before late-February 2018, then a further precautionary check should be undertaken.

### **5.5 Further survey recommendations**

#### **5.5.1 Ecological walk-over**

An ecological walk-over survey should be carried out approximately one month prior to proposed works commencing. This will update the present survey results and ascertain whether any badgers have dug setts on the site in the intervening period.

#### **5.5.2 Nesting birds**

If it is necessary to carry out site clearance works during the bird breeding season, then a nesting bird survey must be carried out prior to works going ahead to ensure that no active nests will be affected. If active nests are found then work will have to be delayed until all chicks have fledged.

## **6 REFERENCES**

Altringham, John. 2003. British Bats. Harper Collins New Naturalist.

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

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R., Lock, L. Musgrove, A., Noble, D., Stroud, D., Richard, G. (2015) Birds of conservation concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108, 708-746.

JNCC 2003 Handbook for Phase 1 Habitat Survey: a technique for environmental audit. JNCC, Peterborough.

MAGIC Site Check Report. Available: [www.magic.gov.uk](http://www.magic.gov.uk).

NBN Gateway. Available: [nbn.org.uk](http://nbn.org.uk).

Shawyer CR 2011 Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment Developing Best Practice in Survey and Reporting

## APPENDIX 1

### Procedure to follow if bats are discovered during works

- If at any point during the works, bats are discovered then contractors must immediately stop work in the relevant area concerned and telephone Andrew Chick 0788 0700313.
- An appropriately licensed bat worker will liaise directly with Natural England. Actions will then be taken following advice given. This may include removal of bats, but only where direct written or verbal permission is gained from Natural England.
- Only when Natural England is satisfied that there is no further risk to bats will works recommence.
- Should it transpire that the operation being carried out is of more risk to bats than was originally thought, then works will be stopped until they can be supervised by an appropriately licensed bat worker.
- If a bat is found under a tile or in any other aperture, works will stop immediately (as above). If the bat does not voluntarily fly out, then the aperture will be carefully covered over to protect the bat(s) from the elements, leaving a small gap for the bat to escape voluntarily. Any covering should be free from grease or other contaminants, and should not be a fibreglass-based material.
- Any injured bats should be gently placed in a secure ventilated box in a cool, quiet dark place (e.g. cardboard box with a sealed lid) by the contractor while wearing gloves for the bat's protection whilst awaiting the arrival of the licensed person.

## APPENDIX 2

Tables; Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins J, The Bat Conservation Trust (2016).

**Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.**

Suitability	Description Roosting habitats	Commuting and foraging habitats
<b>Negligible</b>	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
<b>Low</b>	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
<b>Moderate</b>	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
<b>High</b>	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	<p>Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.</p>

**Table 7.1 Recommended timings for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).**

<b>Low roost suitability</b>	<b>Moderate roost suitability</b>	<b>High roost suitability</b>
May to August (structures) No further surveys required (trees)	May to September with at least one of surveys between May and August	May to September with at least two of surveys between May and August

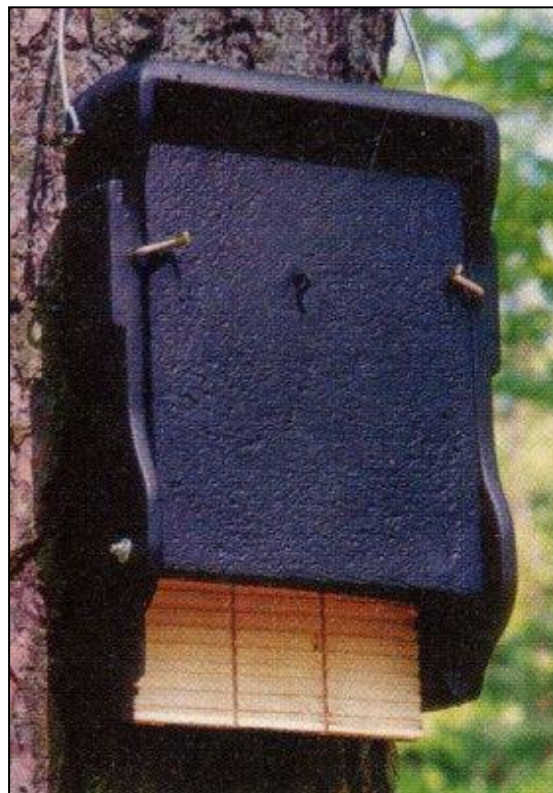
**Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).**

<b>Low roost suitability</b>	<b>Moderate roost suitability</b>	<b>High roost suitability</b>
One survey visit. One dusk emergence or dawn re-entry survey (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn

**APPENDIX 3**  
**Examples of bat boxes**



2F Schwegler Bat Box  
Cost £40 (approx.)



1FF Schwegler Bat Box With Built-in Wooden  
Rear Panel – Cost £60.00

All boxes are available from various natural history supply companies, including <http://www.nhbs.com/>