

Protected Species Survey: Bat dusk emergence / dawn re-entry surveys



Bank House Farm Silkstone, Barnsley

Report Reference: BG15.165

September 2015


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1 Summary

1.1 Brindle and Green were commissioned by Gareth Thompson to undertake an Ecological Assessment on a farm building (Building 1) at Bank House Farm, Barnsley Road, Silkstone. It is understood that the site is the subject of a planning application for the conversion of the farm building into a residential property. The Ecological Appraisal of the site was carried out on the 4th November 2014. The survey found that:

*‘the building has **moderate potential** for roosting bats and since bats have previously been found there (Whitcher Wildlife 2010) it is recommended that further surveys are carried out at the appropriate time of year’.*

1.2 As a consequence of the findings of the Ecological Appraisal, Brindle and Green Ltd was then commissioned to carry out the two recommended bat surveys of the site. One dusk emergence and one dawn re-entry survey was undertaken.

1.3 As a bat roost was encountered during the recommended two surveys, an additional survey was conducted in order to gather the necessary bat activity data according to Bat Conservation Trust guidelines. The three bat surveys carried out at Bank House Farm encountered the following number of roosting species and roost types within Building 1:

- One common pipistrelle (*Pipistrellus pipistrellus*) day roost comprising a single individual.
- One brown long-eared (*Plecotus auritus*) satellite roost comprising up to seven individuals.

1.4 Consequently the findings of the surveys revealed that the farm building at Bank House Farm, Silkstone is a confirmed roost site for common pipistrelle and brown long-eared bats. A Natural England European Protected Species (EPS) licence is required in order to proceed with the development works.

1.5 Appropriately targeted roost mitigation and compensation measures will need to be considered within development proposals in order to instruct the EPS license application. An EPS license will be secured through the provisioning

of suitably located mitigation measures. Full recommendations can be found in Section 10 of this report.

2 Introduction

- 2.1 Brindle & Green have been commissioned by Gareth Thompson to undertake an Ecological Assessment on a farm building (Building 1) at Bank House Farm, Barnsley Road, Silkstone. The project site can be found to the immediate south of Silkstone, in the Metropolitan Borough of Barnsley (Grid Ref: SE 29092 05396).
- 2.2 The project area is an old agricultural barn that sits within a building site as other buildings adjacent have been converted into living accommodation. The building is constructed of double width stone walls with rubble infill and a Yorkshire stone tiled roof. There is a myriad of holes and gaps in the internal elevations of the building that could be suitable for roosting bats. The immediate surrounding environment is considered to be of value for foraging bats and consists of pasture and adjacent wooded areas.
- 2.3 The purpose of the bat surveys was to establish whether bats were roosting within the farm building, to inform the client of any ecological impacts of the proposed works with regards to bats, to summarise any necessary mitigation measures and ensure the client works within the law. A summary of legislation relevant to the protection of bats is provided in Appendix 3.

3 Site Context

3.1 The application site is situated near the centre of Silkstone. Pasture land surrounds the site and recently renovated barns are situated within the same plot. The A628 runs to the north-west and wooded areas exist to the east and south of the application site. The site and buildings are well connected to the wider surroundings and associated biodiversity. The application site and location of Building 1 is displayed in Figure 1 below.

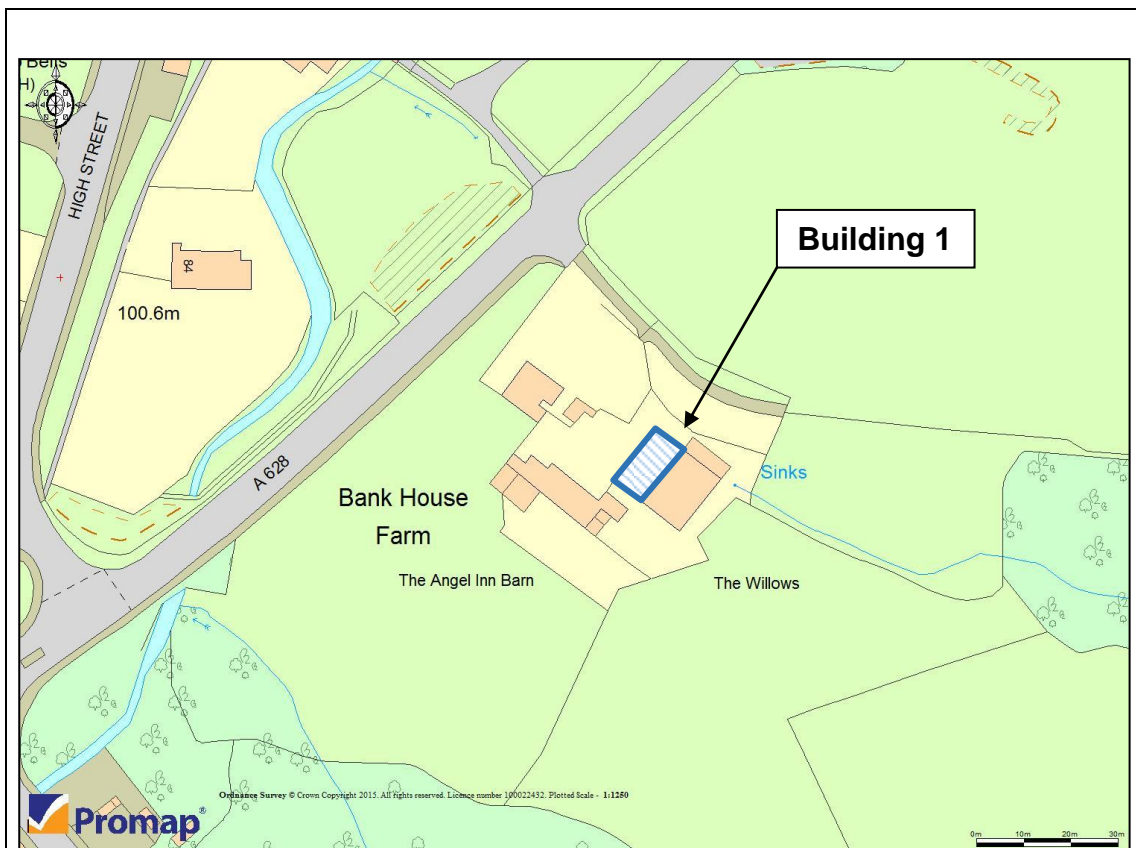


Figure 1. OS Map - Building 1 is labelled and outlined in blue. Grid Ref: SE 29092 05396

4 Methodology

- 4.1 Dusk emergence and dawn re-entry bat surveys were undertaken according to methodologies outlined in Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.

Surveys were carried out on the 20th May, 17th June and 3rd July 2015.

Surveys began about 1 hour before sunset so a daylight survey could be carried out looking for any evidence of bats. The dawn survey began at least 90 minutes prior to sunrise. Between the dates of June 17th and 21st a remote detector (SMZC) was stationed within building 1.

- 4.2 Equipment used:

Two SMZC Zero Crossing Detectors

Each surveyor with Echo Meter Touch detectors connected to iPads

FLIR ONE infrared cameras

EM3 detector

- 4.3 Bats encountered during the survey were recorded using full spectrum bat detectors and later analysed to species level using sonogram analysis software.

5 Limitations

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment. The protected and notable species assessment provides a preliminary view of the likelihood of these species occurring on site, based upon the suitability of the habitats, known distribution of the species in the local area and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group.

6 Report Lifespan

Given the transient nature of the subject the survey results are considered to be accurate for 2 years.

7 Surveyors

7.1 The surveys were undertaken by:

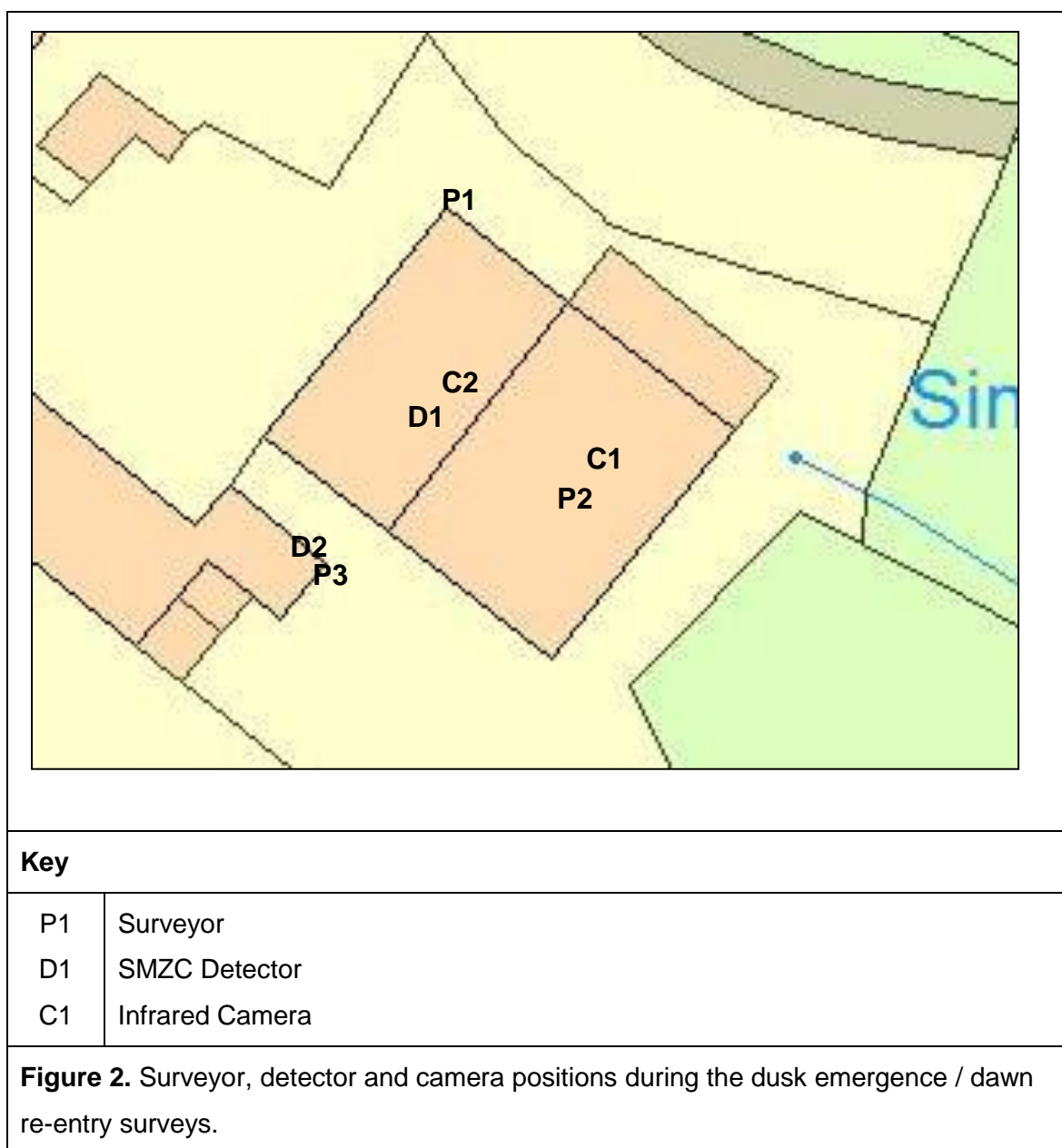
Chris Needham BSc. (Hons.) MSc. MCIEEM (Natural England Licenced).

Jack Roper BSc. (Hons.)

Neil Crofts BSc. (Hons.)

Mark Woodcock BA. (Hons.)

7.2 Bat surveyors, bat detectors and infrared cameras were positioned to ensure maximum visual coverage of Building 1 and features conducive to bat presence (Figure 2).



8 Results

A summary of bat activity per survey is provided below.

8.1 Dusk emergence bat activity survey – 20th May 2015

Surveyors: Chris Needham BSc. (Hons.) MSc. MCIEEM (Natural England Licensed, Jack Roper BSc. (Hons.), Neil Crofts BSc. (Hons.)

Sunset time: 21:07

Survey start: 20:50 (1/8 cloud cover, 10°C, 67% relative humidity)

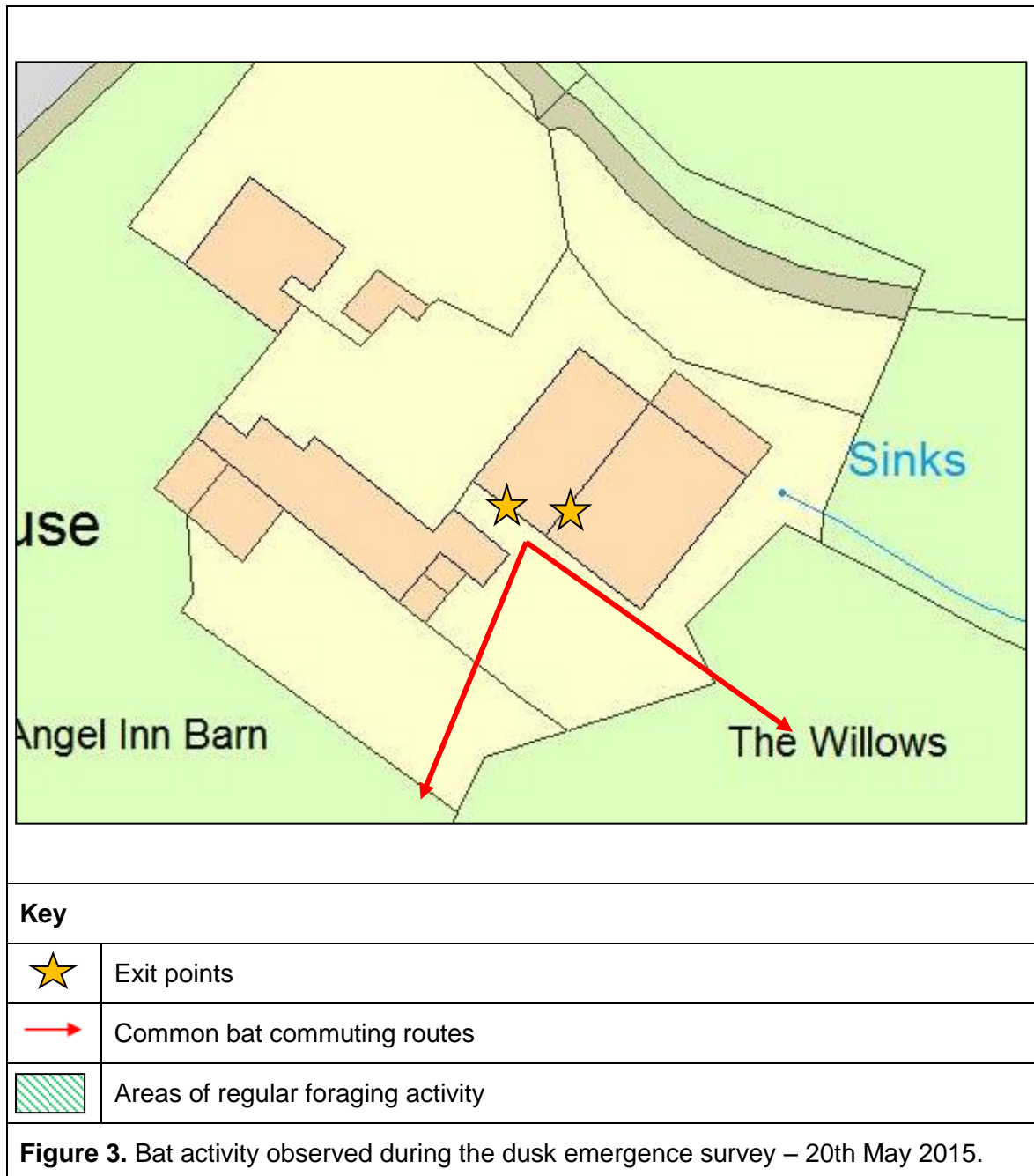
Survey finish: 23:07

Weather conditions: Dry with a light westerly wind.

8.2 Survey effort was focused on determining whether bats were emerging from Building 1 and assessing how bats were using the area within the application site boundary. A pre-inspection of the building failed to locate any evidence of bat activity e.g. droppings, feeding remains.

8.3 Low levels of common pipistrelle and brown long-eared activity were recorded during the survey. Surveyor P2 observed a common pipistrelle emerging from the left side open window on the south-east elevation and continue to commute in a southerly direction at 21:32. Surveyor P3 detected the echolocation calls of a common pipistrelle at 21:42 but a visual was not achieved. This bat is presumed to have been behind the surveyor and did not emerge from the building. The first of the two brown long-eared bats encountered was observed by Surveyor P2 flying closely around the southern corner of Building 1 before commuting to wider habitat offsite. The distinctive 'jizz' of the bat (identifying features and behaviour) and failure to echolocate at a detectable frequency confirmed the recording to be of a brown long-eared bat. Surveyor P3 observed a brown long-eared bat emerge from the open first floor door sited on the south west gable end at 21:52. It was confidently assessed that the first brown long-eared bat also emerged from this location. Several other common pipistrelle passes, but no emergence, were also recorded between 21:53 and 22:06 by Surveyors P2 and P3. Surveyor P1 did not detect any bat activity during the survey.

8.4 A single common pipistrelle and two brown long-eared bats were encountered emerging from building 1 during the survey.



8.5 Dusk emergence bat activity survey – 17th June 2015

Surveyors: Chris Needham BSc. (Hons.) MSc. MCIEEM (Natural England Licensed, Jack Roper BSc. (Hons.), Mark Woodcock BA. (Hons.)

Sunset time: 21:37

Survey start: 21:15 (2/8 cloud cover, 15°C, 69% relative humidity)

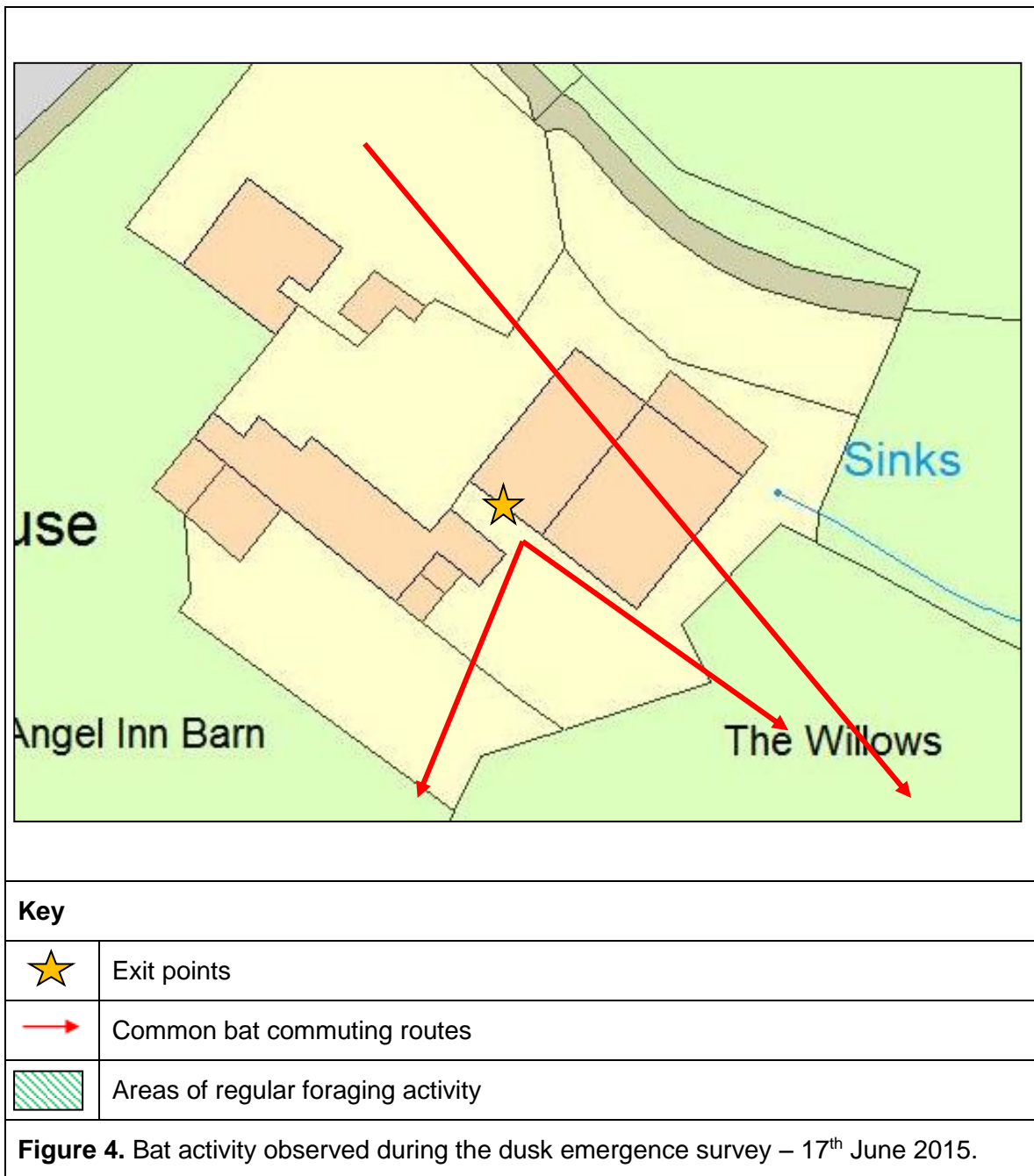
Survey finish: 23:37

Weather conditions: Dry with a light northerly wind.

8.6 Survey effort was focused on determining the species and number of bats emerging from Building 1 and assessing how bats were using the area within the application site boundary. A pre-inspection of the building failed to locate any evidence of bat activity e.g. droppings, feeding remains despite a thorough search of both floors and internal walls.

8.7 Common pipistrelle, brown long-eared, noctule (*Nyctalus noctula*) and *Myotis* spp. were recorded during the survey with higher levels of activity encountered than on the 20th of May. Surveyor P3 observed a bat flying within the apex of the building through the open first floor door at 22:05. Surveyor P3 observed seven brown long-eared bats leaving the building via the open first floor door on the south-west gable end between 22:15 and 22:40. Surveyor P2 often detected these bats as they flew round the gable end corner in a southerly direction. No further bats were encountered emerging from the building. At 22:19 – 22:20 each surveyor observed a common pipistrelle circling Building 1 before commuting away. Early southerly commuting noctule and a single *Myotis* spp. pass were also recorded during the survey. The last recorded bat activity was of a distant common pipistrelle detected by surveyor P1 at 23:02.

8.8 Seven brown long-eared bats were encountered emerging from Building 1 during the survey.



8.9 Remote detector bat activity survey – 17th June to the 21st June 2015

Surveyor: Wildlife Acoustics Song Meter Zero Crossing (SMZC) detector.

Detector settings: The remote detector was positioned centrally on the first floor underneath the ridge beam by Chris Needham BSc. (Hons.) MSc. MCIEEM (Natural England Licensed). The detector was programmed to record between sunset and sunrise from 17th June to the 21st June 2015.

- 8.10 Survey effort was focused on determining species presence within Building 1 and times of greatest activity that may indicate roost emergence and re-entry patterns. A pre-inspection of the building failed to locate any evidence of bat activity e.g. droppings, feeding remains despite a thorough search of both floors and internal walls.
- 8.11 The first recordings of bat activity were always that of brown long-eared typically taken between 40-45mins post sunset time. A single common pipistrelle record was taken on the 19th at 23:23. Brown long-eared activity was typically consistent within the building for 50 minutes following the first recording (22:03 to 22:52 on the 17th June). Only a single brown long-eared record was taken on the evening of the 18th June at 23:50 despite consistent activity from this species being recorded between 01:06 and 02:44. A lack of echolocation, typical of this species, can lead to unregistered activity. Conversely, the bats may have emerged for only brief foraging excursions later into the night owing to poor weather conditions. On the 20th June the first brown long-eared record was collected at 22:07 and activity remained consistent, though intermittent, up until 04:02 on the 21st June, with the longest break between activities being 54mins (22:38 – 23:33).
- 8.12 Recorded activity was indicative of a permanent brown long-eared bat roost emerging and re-entering Building 1. The timings of activity suggest that bats are regularly active within the building during the evening.

8.13 **Dawn re-entry bat activity survey – 03rd July 2015**

Surveyors: Chris Needham BSc. (Hons.) MSc. MCIEEM (Natural England Licensed, Jack Roper BSc. (Hons.)

Sunrise time: 04:47

Survey start: 02:50 (4/8 cloud cover, 13°C, 69% relative humidity)

Survey finish: 04:47

Weather conditions: Dry with no wind.

- 8.14 Survey effort was focused on determining the location of the brown long-eared, and any other species, roost within Building 1. A pre-inspection of the building failed to locate any evidence of bat activity e.g. droppings, feeding remains despite a thorough search of both floors and internal walls.
- 8.15 A brown long-eared bat entered and exited the building via the first floor open door on the south west gable end at 03:45. At 03:55 Chris Needham observed a brown long-eared bat flying within the apex of the building. Between 04:08 and 04:22 five brown long-eared bats entered the building and gone to roost in two separate locations between the ridge beam and roof. This activity was captured on an infrared camera situated within the structure.
- 8.16 Five brown long-eared bats were encountered re-entering Building 1 and going to roost during the survey.

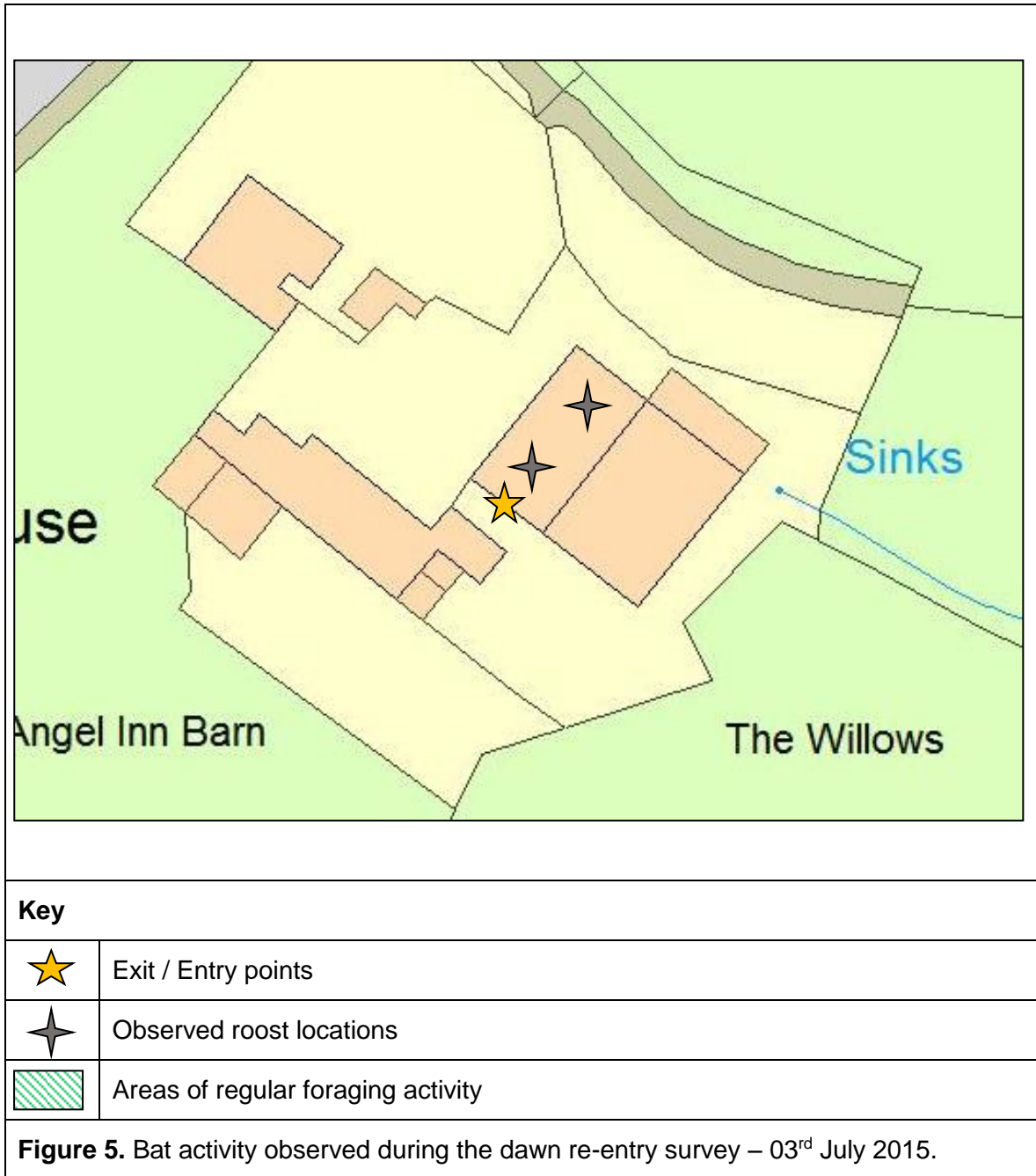




Figure 6. Location of brown long-eared roost location and emergence / re-entry point within building 1, Bank House Farm.

The red circle indicates where two brown long-eared bats landed before entering the space between ridge beam and roof. All brown long-eared bats were found to be using this feature as their chosen roost location but not necessarily along the same ridge beam section.

The lower image illustrates the open first floor door on the south gable end where brown long-eared bats were observed exiting and re-entering the building during surveys.



Figure 7. Infrared image of brown long-eared bat going to roost within Building 1, Bank House Farm. Taken at 04:10 on the 03rd of July 2015.

The red circle indicates a point of increased heat, thus being the brown long-eared bat preparing to land at a roost location; the space between ridge beam and roof.

9 Evaluation

- 9.1 The dusk emergence and dawn re-entry surveys conducted at on Building 1 at Bank House Farm, Silkstone revealed one brown long-eared bat satellite roost and one common pipistrelle day roost. A Natural England bat development licence is required in order to proceed with the development works.
- 9.2 On a single occasion (20th May) a single common pipistrelle was observed emerging from a south east open window. The only other record of a common pipistrelle within the internal space of building 1 was taken on the 19th of June at 23:23 via the remote detector. As a crevice dwelling species it is likely that the roost location for this bat is within the cavity wall of the building where numerous access points are present. Owing to the intermittent occurrence, and single number of common pipistrelle encountered it is confidently assessed that Building 1 supports a day type roost for a single common pipistrelle.
- 9.3 A brown long-eared bat satellite roost was observed within Building 1 during each survey and throughout the deployment of the remote detector. A maximum of seven and minimum of two brown long-eared bats were found to be roosting within Building 1. The roost location is between the ridge beam and roof. It is thought that the gaps under the large Yorkshire stone roofing tiles is enabling droppings to be held within the roof and as such pre-survey inspections failed to locate any droppings within the internal space. The brown long-eared roost was observed within May, June and July. Given the number of of bats observed during the survey it is confidently assessed that Building 1 supports a maternity or satellite type roost for brown long-eared bats. A satellite type roost comprises of breeding females that intermittently or permanently roost away from the main maternity colony.
- 9.4 Although bats typically leave summer roost sites prior to the hibernation period, the double width stone elevations and cavity access points are likely to offer suitable temperature / humidity conditions for hibernating bats. Building 1 cannot be ruled out as a hibernation site for bats.

9.5 Bats were not found to be using the site as a favoured or significant commuting or foraging resource. Impacts to commuting or foraging bats as a consequence of the proposed development are considered negligible.

10 Recommendations

10.1 Building 1 has been confirmed as a roost for brown long-eared and common pipistrelle bats.

Data collected across the surveys conclude the following type of roosts are present:

- Satellite roost for brown long-eared
- Day roost for single or low number of common pipistrelle

10.2 Mitigation should take the form of a European Protected Species Development Licence, achieved as a condition of a successful planning application and granted prior to work starting on site.

10.3 Both common pipistrelle and brown long-eared are considered common species on a national and local scale. Given the relatively low numbers of bats occurring within Building 1, targeting and maintaining conservation status of these species is achievable. The mitigation measures contained within a Licence are likely to include either, all or some of the following elements;

- The erection of temporary summer and hibernation roosting provision (bat boxes) on nearby trees or buildings prior to starting work.
- Timing of works to avoid the demolition of the building during the spring/summer months.
- Inspection of building for bats in torpor during the hibernation period.
- Demolition of the building in a cautious manner, most likely under the supervision of a Bat Licensed Ecologist.
- Incorporation of self-contained bat loft within building 1 or nearby.
- Erection of bat access stone bricks.
- A period of monitoring on completion of the works.

Appendices

Appendix 1. General References

Bat Conservation Trust (2014) Artificial lighting and wildlife Interim Guidance: Recommendations to help minimise the impact artificial lighting. Bat Conservation Trust, London.

Bell, S. McGillivray, D. (2006) *Environmental Law*. 6th ed. Oxford University Press.

Butterfly Conservation trust (2014) Nectar Plants, http://mothscount.org/text/64/nectar_plants.html Accessed June 2015.

Carr, G. Parker, M. (2009) *Barnsley Biodiversity Action Plan*. Barnsley Biodiversity Trust 2009.

Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.

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

Mitchell-Jones A.J. McLeish, A.P. (2004) *Bat Workers Manual* (3rd Edition). Joint Nature Conservation Committee.

Appendix 2. Legislation and Guidance Sources

Articles of British wildlife and countryside legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to. The articles of legislation are:

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitats and Species Regulations 2010
- Department for Communities and Local Government. National Planning Policy Framework. March 2012
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC
- National Parks and Access to the Countryside Act 1949
- The Protection of Badgers Act 1992
- Land Drainage Act 1991
- The Countryside and Rights of Way Act 2000
- The Natural Environment and Rural Communities Act 2006
- The United Kingdom Biodiversity Action Plan 2006
- Hedgerow Regulations 1997
- Town and Country Planning Act 1990
- Local Biodiversity Action Plan (LBAP).

Appendix 3. Relevant Ecology and Legislation

(Please note that this is for information purposes only. Clients should seek further legal advice where necessary).

There are 17 species of bats that occur in Britain. Dramatic declines in population numbers initiated the introduction of European and UK legislative protection. British bats and their roosts are fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Additional protection is offered under Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994.

Buildings and structures which offer roosting potential to bats can be impacted by development and this can result in disturbance to potential roost sites. Bats occupy different roost sites during the year depending on species-specific summer roost and hibernation roost requirements. Bats usually re-use the same roosts, therefore the legal opinion is that the roost is protected whether or not the bats are present at the time.

In the case of development work, activities involving the capture, disturbance and/or relocation of bats are subject to a licence from Natural England. Such licences are only granted:

“For the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, to allow people to carry out activities which would otherwise be illegal.”

Under the *Conservation (Natural Habitats &c.) Regulations 1994*, licences can only be issued if Natural England are satisfied that:

- there is no satisfactory alternative; and
- 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.

Undertaking work to a bat roost without following appropriate recommendations from Natural England and/or DEFRA could lead to prosecution resulting in imprisonment, fines and confiscation of vehicles/equipment used.

Appendix 4. Initial Development Proposals

