

# Applegarth Farm Shop & Barn, Headley Road, Grayshott, Hampshire, GU26 6JL

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## Bat Survey Report

February 2021

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Hampshire Ecological Services Ltd  
*Consultant Ecologists*

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**Bat Survey Report****Applegarth Farm Shop & Barn, Headley Road, Grayshott, Hampshire, GU26 6JL****for****Mr Benson**

<b>Reference: Applegarth Farm Shop &amp; Barn, Grayshott</b>	
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This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions, scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

The author disclaims any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and the author accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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# 1 EXECUTIVE SUMMARY

1. This report provides details of bat emergence and re-entry surveys carried out by Hampshire Ecological Services Ltd for Mr Benson, in connection with renovations and extensions to the buildings at Applegarth Farm Shop & Barn, Headley Road, Grayshott, Hampshire, GU26 6JL (approximate Ordnance Survey Grid Reference SU858358). The site consists of a collection of predominately wooden buildings with the Shop and Barn the largest amongst several smaller sheds. The immediate surroundings are seating areas, a children's play area, a carpark and a storage/yard area. The locations of the buildings are shown in *Figure 1* and the location of the site is shown in *Figure 2* (see *Section 6*).
2. Previously an ecological impact assessment was carried out by Jonathon Cox Associates (2015) in 2013 and 2014. As part of the surveys a static bat detector was deployed on the 18<sup>th</sup> September 2013 and dusk emergence and pre-dawn re-entry surveys were carried out on the 8<sup>th</sup>, 27<sup>th</sup> & 30<sup>th</sup> June 2014. Common pipistrelle and soprano pipistrelle were recorded emerging and re-entering the Barn during these surveys.
3. A preliminary ecological appraisal was carried out by Owen Crawshaw BSc (Hons) ACIEEM of The Ecology Co-operation Ltd (2019) on the 21<sup>st</sup> August 2019, to conduct an appraisal of the buildings and identify potential ecological constraints. The Shop was assessed as having moderate bat roost potential and it was recommended that two emergence/ re-entry surveys were carried out on this building. The Barn was identified as a confirmed bat roost based on the presence of bat droppings and the emerging bats observed during the surveys in 2014. It was recommended that three emergence/ re-entry surveys were carried out on this building.
4. Hampshire Ecological Services Ltd was commissioned to carry out dusk emergence surveys and pre-dawn re-entry surveys in 2019 to identify if bats are using the Shop and to update the information on the Barn. In 2020, a further update dusk emergence was carried on the Barn. The dates, times, weather, and personnel carrying out the surveys are given in *Sections 3.1.* and *3.2.*
5. No bats were recorded emerging from or re-entering the Shop. Therefore a bat licence is not required for works on this building.
6. Common pipistrelles and soprano pipistrelles were recorded emerging from and re-entering the Barn. These are summarised below and a plan summarising bat emergence and re-entry locations is given in *Figure 4.1.1* in *Section 4.1.* The full data from the surveys is given in *Appendix C* and plans showing the foraging and commuting bats are given in *Figures 3-8* in *Section 6.*

Date	No.	Species	Description
30/08/19	1	Pipistrelle species	Re-entering a gap in the wooden cladding near the apex on the north-east elevation.
	1	Soprano pipistrelle	Emerging from a gap in the wooden cladding near the apex on the north-east elevation.
11/09/19	1	Common pipistrelle	Emerging from a gap in the wooden cladding near the west corner on the south-west elevation.
	3	Common pipistrelle	Emerging from a gap in the wooden cladding near the apex on the north-east elevation.
24/09/19	-	-	-
31/08/20	3	Common pipistrelle	Emerging from a gap in the wooden cladding on the south-west elevation
	1	Common pipistrelle	Emerging from a gap in the wooden cladding near the west corner on the south-west elevation.
	1	Common pipistrelle	Emerging from a gap in the wooden cladding on the south-east elevation

7. Common pipistrelle, soprano pipistrelle, noctule, and serotine bats were seen and heard foraging around the buildings indicating the weather was suitable for bat activity during all surveys.
8. As the Barn is a confirmed bat roost, a bat licence from Natural England is required before any works can take place on this building. The Shop should be included on the same licence as any displaced bats may roost there. The demolition of the Barn has the potential to kill, injure or disturb roosting bats. The impact to the roosts will be roost loss (if no mitigation). New buildings will be built to the north-east of the existing buildings, these must incorporate bat mitigation.
9. A detailed method statement with a mitigation strategy will need to be prepared for a licence from Natural England. In addition, National Planning Policy Framework (NPPF 2019) states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*". Therefore, a brief draft of the proposed mitigation is described in the following:
  - A toolbox talk will be given to the contractors, prior to any work commencing, to inform them on how to protect bats during the works. It will include an overview of the ecological issues and licensing implications on site, the precautions to be taken and the method of hand demolition in sensitive areas.
  - The wooden cladding will be removed carefully by hand under strict ecological supervision to ensure bats are not using these areas. This will ideally be completed in September/October once maternity colonies have dispersed and before bats have begun to hibernate; or in March/ April before bats have returned to form maternity colonies. However, work at any time of year may be acceptable (subject to licensing from Natural England) providing the destructive search is carried out in mild spells (above 5°C) in winter or a pre-works check does not suggest the status of the roost has changed.

- A minimum of two woodstone bat boxes (*e.g.* Vivara Pro Harlech Woodstone or similar) will be erected in a large nearby tree(s) prior to the commencement of the works. These bat boxes will be erected between 2.5m and 5m, ideally, facing south or south-east with a clear exit path. These bat boxes will remain on site permanently (and shall be repaired or replaced as necessary).
- Any bats found during the destructive searches will be placed within the bat boxes erected on a nearby tree. Bats will be captured by hand by the ecologist and, after being checked for injuries, transported immediately in cotton drawstring bags.
- Access is currently gained behind the wooden cladding via lifted and warped boards. As the existing roost will be lost, like-for-like replacement bat access points must be created in similar locations on the new buildings. This will involve inserting wedges or cutting/drilling access holes into the feather-board external cladding to create gaps for bat access (see *Image 5.6.3.1.*). Integrated bat boxes will be inserted into the wooden cladding to further provide roosting locations for bats.
- In the event that an injured bat is encountered during the destructive search, it will be taken to a veterinary surgeon so that the extent of its injuries can be assessed. If not life-threatening it will be taken to one of the local bat group's designated carers.
- The roof lining **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). This is because bats can become entangled in breathable membranes and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat European Protected Species licence from Natural England.
- Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.
- No lighting should be installed near to or directed onto the bat access points and retained vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by disturbing roosts and reducing their foraging area, or indirectly by severing commuting routes from roosts.
- The use of high intensity lighting should be avoided, particularly near the bat access points and retained vegetation and any bat mitigation measures (particularly access points).
- Once the supervising ecologist is satisfied that all affected structures that may provide bat roosting opportunities have been safely searched and removed or made unsuitable for further bat habitation, the remaining works will proceed without further supervision by a suitably qualified ecologist. The action to take if any bats are discovered during unsupervised works will also be made clear.

10. The proposed mitigation and enhancement measures are shown in *Figure 9* in *Section 6*.

11. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission. In addition, National Planning Policy Framework (NPPF 2019) states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*". Therefore, a mixture of night scented plants should be planted to enhance the foraging habitat on site. These will attract insects that in turn bats will feed on (see *Section 5.6.5*).
  
12. This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapses it may be advisable to conduct further survey work to obtain up-to-date information, thereby ensuring protected species compliance.



### **2.1 General & background information**

This report provides information from bat emergence and re-entry surveys carried out by Hampshire Ecological Services Ltd for Mr Benson, in connection with renovations and extensions to Applegarth Farm Shop & Barn, Headley Road, Grayshott, Hampshire, GU26 6JL (approximate Ordnance Survey Grid Reference SU858358). The location of the site is shown in *Figures 1 and 2 in Section 6*.

Previously an ecological impact assessment was carried out by Jonathon Cox Associates (2015) in 2013 and 2014. As part of the surveys a static bat detector was deployed on the 18<sup>th</sup> September 2013 and dusk emergence and pre-dawn re-entry surveys were carried out on the 8<sup>th</sup>, 27<sup>th</sup> & 30<sup>th</sup> June 2014. Common pipistrelle and soprano pipistrelle were recorded emerging and re-entering the Barn during these surveys.

A preliminary ecological appraisal was carried out by Owen Crawshaw BSc (Hons) ACIEEM of The Ecology Co-operation Ltd (2019) on the 21<sup>st</sup> August 2019, to conduct an appraisal of the buildings and identify potential ecological constraints. The Shop was assessed as having moderate bat roost potential and it was recommended that two emergence/ re-entry surveys were carried out on this building. The Barn was identified as a confirmed bat roost based on the presence of bat droppings and the emerging bats observed during the surveys in 2014. It was recommended that three emergence/ re-entry surveys were carried out on this building.

Hampshire Ecological Services Ltd were commissioned to carry out dusk emergence surveys and pre-dawn re-entry surveys in 2019 to identify if bats are using the Shop and to update the information on the Barn. In 2020 a further update dusk emergence survey was carried out on the Barn.

### **2.2 Site description**

The site consists of a collection of predominately wooden buildings with the Shop and Barn the largest amongst several smaller sheds. The immediate surroundings are seating areas, a children's play area, a carpark and a storage/yard area. The buildings surveyed are shown in the aerial photos in *Figure 1 in Section 6*.

The site lies on the north-east side of Headley Road, between the villages of Grayshott and Headley Down. The immediate surroundings are the residential properties of a new housing development (Applegarth Vale) to the east; a derelict golf driving range and grassland to the north-west; and Grayshott Health Spa to the south-west. There are extensive areas of woodland in all directions. Ludshott Common SSSI (part of the Wealden Heath Phase II SPA) is to the south-east.

### 2.3 ***Proposed activities***

This survey was carried out in connection with proposed renovations and extensions to the buildings on the site.

### 2.4 ***Objectives of survey and report***

The surveys by Hampshire Ecological Services Ltd aimed to identify if bats are using the Shop and to update the information on the Barn.

The surveys and the report writing were carried out in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3<sup>rd</sup> edition* (Collins, 2016). Any deviations from the guidelines are justified in the relevant sections.

Additionally, all ecological surveys should be completed in line with Natural England's *Standing Advice for Local Authorities*

(<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/advice.aspx>), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (i.e. in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

### 2.5 ***Structure of this report***

This report is structured as follows:

- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;
- *Section 3* describes the survey methods;
- *Section 4* describes the results;
- *Section 5* evaluates the findings;
- *Section 6* contains the figures including:
  - *Figure 1* gives aerial photographs showing the building locations;
  - *Figure 2* gives an Ordnance Survey map showing the locations of the buildings;
  - *Figures 3-8* illustrate the bat activity recorded during the dusk emergence and pre-dawn re-entry surveys; and
  - *Figure 9* gives a location plan of the proposed mitigation measures.
- *Section 7* lists the references;
- *Appendix A* gives information on relevant legislation;
- *Appendix B* gives information on bat ecology; and
- *Appendix C* gives the raw data from the emergence and re-entry surveys.

**METHODS****3.1 Dates, times and weather**

Details of the dates, weather and times of the surveys are given in *Table 3.1.1*.

*Table 3.1.1. Dates, times and weather conditions during the surveys.*

Date	Start time	End time	Sunset/ sunrise	Temperature at start & end (°C)	Wind (Beaufort scale)	Cloud cover (%)
28/08/2019	04:38	06:23	06:08	19.2 – 18.0	1	90
30/08/2019	04:47	06:27	06:12	15.0 – 14.0	0	40
11/09/2019	19:13	20:58	19:28	18.0 – 18.2	0	100
16/09/2019	19:01	20:46	19:06	17.2 – 17.1	1	100
24/09/2019	18:43	20:28	18:58	16.2 – 15.1	0	100
31/08/2020	19:34	21:19	19:49	10.0 – 9.0	0	0 - 20

**3.2 Personnel**

The dusk emergence and pre-dawn re-entry surveys were carried out by John Poland CEnv MCIEM CBiol MSB (Bat Class Licence registration number 2015-11159-CLS-CLS), Nicola Pyle BSc MCIEM (Bat Class Licence registration number 2015-18259-CLS-CLS), Calum Cooper BSc (Hons) GradCIEEM, Chloe Mockridge MSc GradCIEEM, Claire Ford MSc, Ben Willers BSc (Hons), Sophie Jones BSc, Andrew Lomas MSc, Ellie Welch BSc and Nathan Dixon (see *Table 3.2.1*). All surveyors are experienced in carrying out bat surveys using detectors.

*Table 3.2.1. Surveyors on the dusk emergence and pre-dawn re-entry surveys.*

28/08/2019 (Shop)	30/08/2019 (Barn)	11/09/2019 (Barn)	16/09/2019 (Shop)	24/09/2019 (Barn)	31/08/2020 (Barn)
Calum Cooper	John Poland	John Poland	Calum Cooper	Calum Cooper	Nicola Pyle
Ben Willers	Calum Cooper	Nicola Pyle	Ben Willers	Chloe Mockridge	Andrew Lomas
	Claire Ford	Calum Cooper		Ben Willers	Ellie Welch
	Ben Willers	Sophie Jones			Nathan Dixon

This report was reviewed by John Poland CEnv MCIEM CBiol MSB, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), a Chartered Environmentalist (CEnv), a Chartered Biologist (CBiol) and multi-species licence holder with 20 years of experience in ecological consultancy and Victoria Russell MCIEM who is a full member of the CIEEM and multi-species licence holder with over 23 years of experience in ecological consultancy.

All staff adhere to the Chartered Institute of Ecology and Environmental Management's (CIEEM) *Code of Professional Conduct*.

### **3.2 Dusk emergence & pre-dawn re-entry surveys**

The dusk emergence and pre-dawn re-entry surveys followed standard survey protocol in *Bat Surveys – Good Practice Guidelines, 3rd edition* (Collins, 2016).

The dusk emergence surveys commenced fifteen minutes before sunset and continued for an hour and a half after sunset. The pre-dawn re-entry surveys commenced an hour and a half before sunrise and continued for fifteen minutes after sunrise. The weather was suitable for bat emergence and foraging.

The surveyors were located with good views of the potential bat access points. The timing of the visits, from early evening until after dark and early morning until light, was aimed at detecting active bats in the vicinity. When it was too dark for visual observation, electronic bat detectors were used to listen for the ultrasonic sounds produced by bats either flying in the vicinity or emerging from the buildings.

The surveyors recorded all bat activity encountered but particular attention was focused on any bats emerging or re-entering. The results were documented by noting the time, bat species and behaviour (*e.g.* commuting, foraging, social interaction *etc.*). Surveyors were in constant contact via hand-held radios so that information could be easily exchanged regarding bat activity. The time on all surveyors watches and mobile phones were synchronised so time data was recorded precisely.

Bat detectors are used so that surveyors can identify most bat species in the field, using the heterodyne output in combination with bat shape, flight pattern and behaviour. In addition, solid-state recorders (Roland-05) were employed to record bat calls for later sonogram analysis using BatSound™ computer software. Frequency-division, whereby the ultrasound is divided by 10 into an audible range, has a considerable advantage over time-expansion for survey work as it allows recordings to be taken in real time. This ensures that all bat activity is recorded.

Queried recordings were later analysed through BatSound™ software. The species of bat was confirmed at this stage. Bat detector surveys provide one of the most effective methods of identifying bat species and activity patterns. However, it is not always possible to identify bats down to species level even with subsequent sound analysis.

**4.1 Survey results**

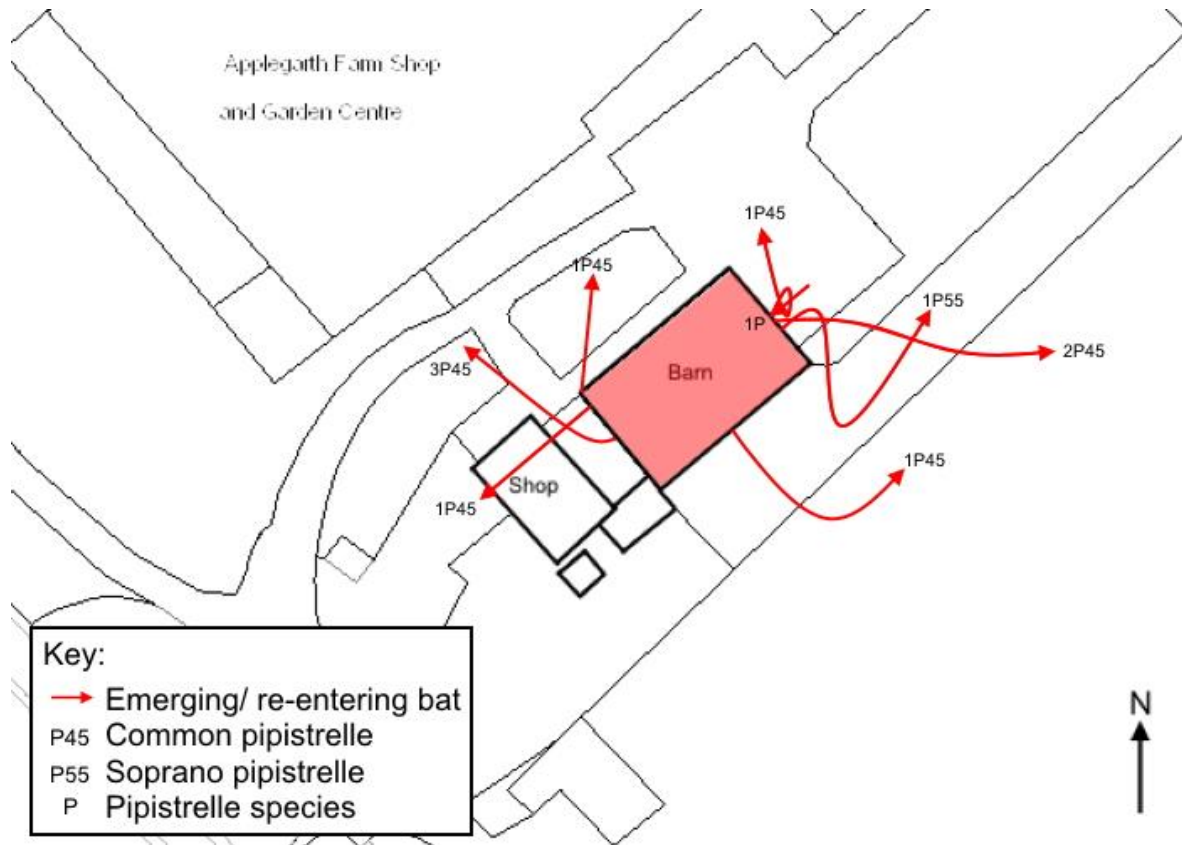
No bats were observed emerging from or re-entering the Shop.

Common pipistrelle and soprano pipistrelle were observed emerging from and re-entering the Barn. These are summarised in *Table 4.1.1* and illustrated in *Figure 4.1.1*.

*Table 4.1.1. Summary of the emergences from and re-entries to the Barn during the surveys.*

<b>Date</b>	<b>No.</b>	<b>Species</b>	<b>Description</b>
30/08/19	1	Pipistrelle species (not identified to species)	Re-entering a gap in the wooden cladding near the apex on the north-east elevation.
	1	Soprano pipistrelle	Emerging from a gap in the wooden cladding near the apex on the north-east elevation.
11/09/19	1	Common pipistrelle	Emerging from a gap in the wooden cladding near the west corner on the south-west elevation.
	3	Common pipistrelle	Emerging from a gap in the wooden cladding near the apex on the north-east elevation.
24/09/19	-	-	-
31/08/20	3	Common pipistrelle	Emerging from a gap in the wooden cladding on the south-west elevation
	1	Common pipistrelle	Emerging from a gap in the wooden cladding near the west corner on the south-west elevation.
	1	Common pipistrelle	Emerging from a gap in the wooden cladding on the south-east elevation

Figure 4.1.1. Plan summarising the emergences from and re-entries to the Barn.



Common pipistrelle, soprano pipistrelle, noctule and serotine bats were recorded feeding and commuting on the site, indicating the weather was suitable for bat activity.

The full data from the surveys is given in *Appendix C* and plans showing the locations of bats observed during the dusk emergence and pre-dawn re-entry surveys are given in *Figures 3-8* in *Section 6*.

## 5 ***INTERPRETATION AND EVALUATION***

### 5.1 ***Constraints***

#### 5.1.1 *Constraints on survey data*

There were no constraints on the surveys.

#### 5.1.2 *Constraints on the mitigation, compensation and enhancement measures*

There are limitations to bat compensation options under the current plans due to the demolition of the existing buildings. New provision will be needed within the new buildings. However, given the roost is low numbers of common species it is unlikely to have a significant impact to bat populations in the area.

In addition, the placement of the new buildings and the car-parking means that the light levels and timing of lit areas will need to be carefully considered.

### 5.2 ***Potential impacts of the proposed works on bats***

#### 5.2.1 *Commuting and foraging*

There is suitable foraging habitat for emerging bats in the immediate vicinity of the buildings including nearby mature trees. These connect to a network of hedges, tree-lines and high quality foraging habitat in the wider landscape such as woodland.

Common pipistrelles, soprano pipistrelle, noctule and serotine bats were recorded commuting and foraging on and around the site.

The trees should be unaffected and all links will be maintained. Retaining connectivity around the edges of the site will help minimise any potential impact to foraging bats and bat populations in the local area.

Changes in lighting can affect foraging, commuting and roosting bats. Therefore no lighting should be directed onto retained vegetation, and security lights should operate on a timer, to avoid any negative impact on bats.

#### 5.2.2 *Shop*

No bats were recorded emerging from or re-entering the Shop. Therefore, it is not a bat roost and a bat licence is not required for the demolition of this building.

### 5.2.3 *Barn*

Evidence of roosting bats (droppings) was previously found within the exterior wooden cladding of the Barn, indicating bats are using the building as a roost. In addition, there were previous records of bats using the Barn.

Common pipistrelles and soprano pipistrelles were recorded emerging and re-entering the Barn (see *Section 4.1*). The number of bats using the wooden cladding at the north-east, south-east and south-west elevations suggests that these areas are non-breeding day roosts for low numbers of common pipistrelles and soprano pipistrelles.

The demolition of the Barn has the potential to kill, injure or disturb roosting bats. The impact to the roosts will be roost loss (if no mitigation). New buildings are proposed to be constructed to the north-west of the existing barn, bat mitigation and enhancements will need to be incorporated into the new buildings and the wider site.

A bat licence from Natural England will be required before any works can take place on the Barn.

The works will be carried out in line with the methods detailed within the Natural England bat licence. A summary of proposed mitigation and enhancement measures is given in *Section 5.6*.

### 5.3 *Alternative roosting potential*

There are buildings nearby that could provide alternative roosting for bats (see *Figure 1* in *Section 6*).

### 5.4 *Survey report expiry*

This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapses it may be advisable to conduct further survey work to obtain up-to-date information to advise work, thereby ensuring protected species compliance.

Given the mobility of bats, it is recommended that an additional emergence survey is carried out to update the survey information if the works to the buildings has not commenced by the end of September 2021.

### 5.5 *Further survey*

No further surveys are proposed.



## 5.6 *Outline mitigation & enhancement measures*

### 5.6.1 *General*

A detailed method statement with a mitigation strategy aimed at maintaining the conservation status of bats will need to be prepared as part of a bat licence from Natural England. The proposed mitigation for works to the Barn is described in the following sections.

### 5.6.2 *Mitigation and enhancement measures*

A toolbox talk will be given to the contractors, prior to any work commencing, to inform them on how to protect bats during the works. It will include an overview of the ecological issues and licensing implications on site, the precautions to be taken and the method of hand demolition in sensitive areas.

A minimum of two woodstone bat boxes (*e.g.* Vivara Pro Woodstone or Beaumaris Woodstone or similar) will be erected in a large nearby tree prior to the commencement of the works. These bat boxes will be erected between 2.5m and 5m, facing south or south-east with a clear exit path. These bat boxes will remain on site permanently (and shall be repaired or replaced as necessary).

A destructive search of the wooden cladding will be carried out. Works should ideally commence in either September/October before bats have begun to hibernate; or in March/ April after bat have come out of hibernation. However, work at any time of year may be acceptable depending on the status of the roost and subject to licensing from Natural England. This could include the destructive search being carried out in mild spells (above 5°C) in winter, as long as, a pre-works check does not suggest the status of the roost has changed. The wooden cladding will be removed carefully by hand under strict ecological supervision.

Any bats found during the destructive searches will be placed within the bat boxes. Bats will be captured by hand by the ecologist and, after being checked for injuries, transported immediately in cotton drawstring bags.

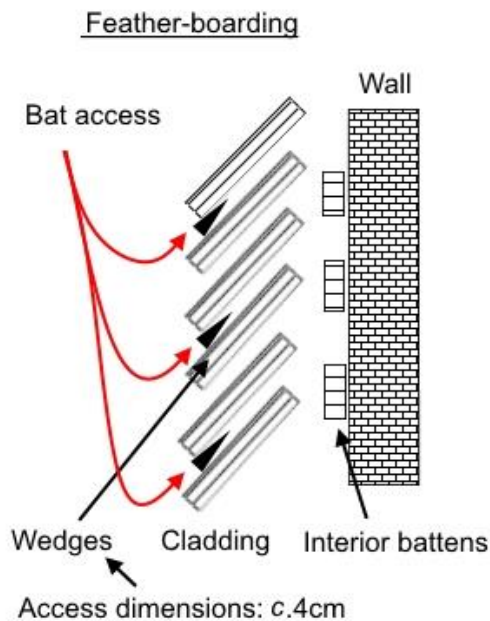
In the event that an injured bat is encountered during the destructive search it will be taken to a veterinary surgeon so that the extent of its injuries can be assessed. If not life-threatening it will be taken to one of Hampshire Bat Group's designated carers.

Once the supervising ecologist is satisfied that all affected structures that may provide bat roosting opportunities have been safely searched and removed or made unsuitable for further bat habitation, the remaining works will proceed without further supervision by a suitably qualified ecologist. The action to take if any bats are discovered during unsupervised works will also be made clear.

Access is currently gained behind the wooden cladding via lifted and warped boards. As the existing access points are lost due to the demolition, like-for-like replacement bat access points must be created in similar locations and aspects on the new buildings (see *Figure 9* in *Section 6*).

This will involve inserting wedges or cutting/drilling access holes into the feather-board external cladding to create gaps for bat access (see *Image 5.6.3.1.*).

*Image 5.6.3.1. Example of bat access into wooden cladding.*



The lining behind the wooden cladding on the new buildings **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). This is currently a Natural England licence requirement whilst a safe alternative is being researched. This is because bats can become entangled in breathable membranes and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat licence from Natural England.

To further enhance the site for bats, it is proposed that integrated bat boxes/bricks (*e.g.* a Habibat™ Bat Box or an Istock Enclosed Bat Box, a Schwegler Bat Tube or similar) are incorporated into the new buildings (see *Figure 9* in *Section 6*). These bat features should be located on all elevations near to retained or planted vegetation. This will optimise potential roosting opportunities.

Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.

### 5.6.3 *Lighting*

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained or planted vegetation (particularly the boundary bushes) and any lighting installed should avoid spillage of greater than 1 lux near to or directly onto the bat enhancements and vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by disturbing roosts and reducing their foraging area, or indirectly by severing commuting routes from roosts. Therefore, the following (modified from *Bats and lighting in the UK* (ILP 2018)) should be undertaken:

- **Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any retained vegetation. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats, as well as people and other wildlife.

For any security lighting, the following should also apply:

- **Power** It is rarely necessary to use a lamp of greater than 2000 lumens (150W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.
- **Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed.
- **Timers** If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.
- **Alternatives** The requirement for security lighting in each instance should be carefully considered and only used where absolutely necessary to deter crime.

The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

### 5.6.4 *Planting enhancements for bats*

Plants that attract insects are generally helpful and trees, shrubs and flowering plants can provide cover for wildlife. Therefore, to enhance the ecological value of the site, the landscaping should incorporate a mixture of native and non-native species of value to wildlife. This mixture will be planted to encourage a diversity of insects, which in turn will attract different species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are beneficial. Night-flowering blossoms attract night-flying insects, which in turn provide prey for bats. Examples of suitable plant species that could be planted to encourage wildlife include those in *Tables 5.6.5.1.* and *5.6.5.2.* Approximate flowering periods are listed in the tables.

Table 5.6.5.1. Native and non-native species that could be incorporated into the landscaping.

<b>Species</b>	<b>Common Name</b>	<b>Approximate flowering period</b>
<i>Achillea millefolium</i>	Yarrow	Early summer
<i>Aubretia</i> species	Aubretia	Spring to early summer
<i>Berberis darwinii</i>	Darwin's Barberry	Spring
<i>Iberis sempervirens</i>	Candytuft	Summer to autumn
<i>Centaurea montana</i>	Cornflower	Spring to summer
<i>Centaurea scabiosa</i>	Knapweed	Summer to autumn
<i>Centranthus ruber</i>	Red valerian	Summer to autumn
<i>Cornus sanguinea</i>	Dogwood	Summer
<i>Dianthus barbatus</i>	Sweet William	Summer
<i>Echinacea</i> species	Echinacea	Summer to autumn
<i>Erysimum</i> species	Wallflowers	Spring to early summer
<i>Glebionis segetum</i>	Corn marigold	Spring to summer
<i>Hebe</i> species	Hebes	Summer to autumn
<i>Hedera helix</i>	Ivy	Autumn
<i>Hesperis matronalis</i>	Dame's-violet	Spring to summer
<i>Hyacinthoides non-scripta</i>	English Bluebell	Spring
<i>Hylotelephium spectabile</i>	Ice plant 'Pink lady'	Early autumn
<i>Hypericum</i> species	St John's wort	Spring
<i>Ilex aquifolium</i>	Holly	Spring to summer
<i>Jasminum officinale</i>	Common White Jasmine	Summer to autumn
<i>Lavandula angustifolia</i>	Garden Lavender	Summer
<i>Leucanthemum vulgare</i>	Ox-eye daisy	Summer
<i>Limnanthes douglasii</i>	Poached egg plant	Summer
<i>Lonicera caprifolium</i>	Perfoliate Honeysuckle	Summer
<i>Lonicera etrusca</i>	Italian Honeysuckle	Summer to autumn
<i>Lonicera japonica</i>	Japanese Honeysuckle	Spring
<i>Lonicera periclymenum</i>	Honeysuckle	Summer to autumn
<i>Lunaria annua</i>	Honesty	Spring
<i>Malus domestica</i>	Apple	Spring
<i>Malus sylvestris</i>	Crab Apple	Spring
<i>Malva</i> species	Mallow	Summer to autumn
<i>Matthiola longipetala</i>	Night-scented stock	Summer
<i>Myosotis sylvatica</i>	Wood forget-me-not	Spring
<i>Nicotiana</i> species	Tobacco plant	Summer
<i>Oenothera</i> species	Evening primroses	Summer to autumn
<i>Papaver rhoeas</i>	Corn poppy	Summer
<i>Phacelia</i> species	Phacelia	Summer to autumn
<i>Primula vulgaris</i>	Primrose	Spring
<i>Rosa</i> species	Rose	Summer
<i>Rubus fruticosus</i> agg.	Bramble	Spring to summer
<i>Saponaria officinalis</i>	Soapwort	Summer

<i>Saxifraga fortunei</i>	Cherry pie	Summer to autumn
<i>Scabiosa</i> species	Scabious	Summer
<i>Silene dioica</i>	Red campion	Spring
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn
<i>Silene vulgaris</i>	Bladder Campion	Summer
<i>Verbena</i> species	Vervain	Summer to autumn
<i>Viburnum lantana</i>	Wayfaring-tree	Spring to summer
<i>Viburnum opulus</i>	Guelder-rose	Summer

Table 5.6.5.2. Examples of suitable garden herbs that could be planted in and around the site to encourage wildlife.

<b>Species</b>	<b>Common Name</b>	<b>Approximate flowering period</b>
<i>Angelica</i> species	Angelica	Summer to autumn
<i>Borago officinalis</i>	Borage	Spring to early autumn
<i>Calendula officinalis</i>	English marigolds	Summer to autumn
<i>Foeniculum vulgare</i>	Fennel	Summer to early autumn
<i>Hesperis matronalis</i>	Dame's-violet, often sold as Sweet Rocket	Spring to summer
<i>Hyssopus officinalis</i>	Hyssop	Summer to early autumn
<i>Matthiola bicornis</i>	Night-scented Stock	Spring to autumn
<i>Melissa officinalis</i>	Lemon balm	Summer
<i>Monarda</i> species	Bergamot	Summer to early autumn
<i>Nicotiana</i> species	Tobacco-plant	Spring to autumn
<i>Oenothera</i> species	Evening-primroses	Summer
<i>Origanum vulgare</i>	Marjoram	Summer
<i>Rosmarinus officinalis</i>	Rosemary	Spring
<i>Saponaria officinalis</i>	Soapwort	Summer to autumn
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn
<i>Silene vulgaris</i>	Bladder Campion	Spring to summer
<i>Tanacetum parthenium</i>	Feverfew	Summer to early autumn
<i>Thymus</i> species	Thyme	Summer

A mixture of trees, shrubs and flowering plants will be planted to encourage a diversity of insects, which in turn will attract different species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are beneficial. Night-flowering blossoms attract night-flying insects, which in turn provide prey for bats. Approximate flowering periods are listed above.

Full details of the planting enhancements over the site are given in *Applegarth Farm Shop, Headley Road, Grayshott, Hampshire, GU26 6JL. Ecological Appraisal Report*. (Hampshire Ecological Services Ltd, 2021).

## 5.7 Requirement for Habitats Regulations licence

A bat licence from Natural England will be necessary before work commences on the Barn.

A licence for bats from Natural England permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.

Evidence is required from emergence surveys during the bat active season between May and September in order to gather enough information about bat populations (including species, numbers and status of roost sites) to support a bat EPS licence application.

Survey data supporting licence applications must be up-to-date, *i.e.* have been conducted within the current or most recent optimal survey season (May to September). Therefore, if licensable work is delayed until, during or after the next survey season, updated survey(s) will be required to support an application.

Natural England takes a minimum of 30 working days to process licence applications following receipt of all the relevant documentation. This includes an application form and a Method Statement. This includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

It is not possible to apply for a licence until full planning permission has been granted and any conditions relating to wildlife fulfilled, although Local Planning Authorities usually request the information prior to determining a planning application request. Additional time will be required where any revisions to a proposed mitigation strategy are necessary to obtain the licence.

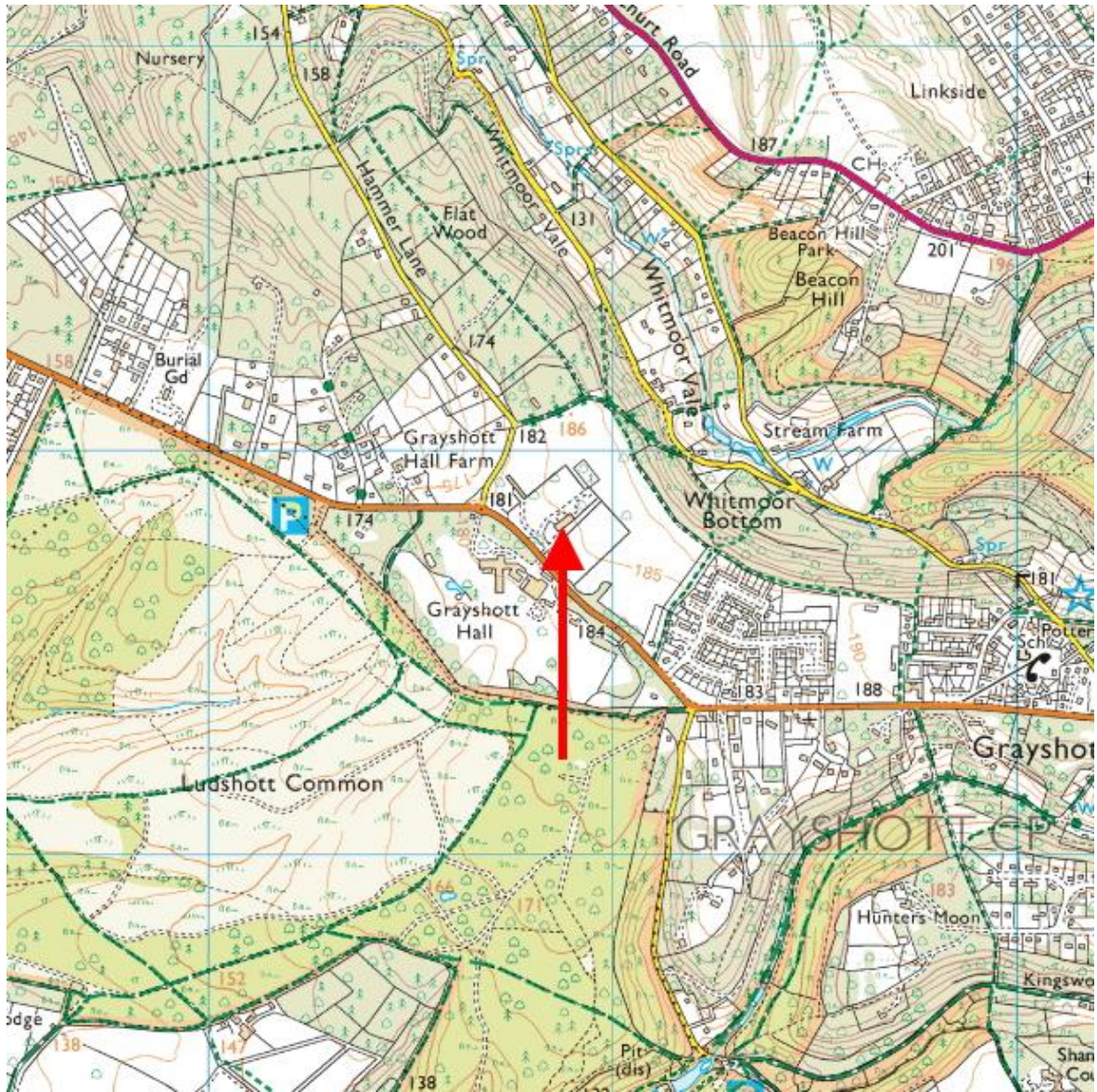


Figure 1. Aerial photographs showing the location of the site.





Figure 2. An Ordnance Survey map showing the site location, as indicated by the red arrow.



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Figure 3. Plan showing the pre-dawn re-entry survey carried out on the Shop on the 28<sup>th</sup> August 2019.

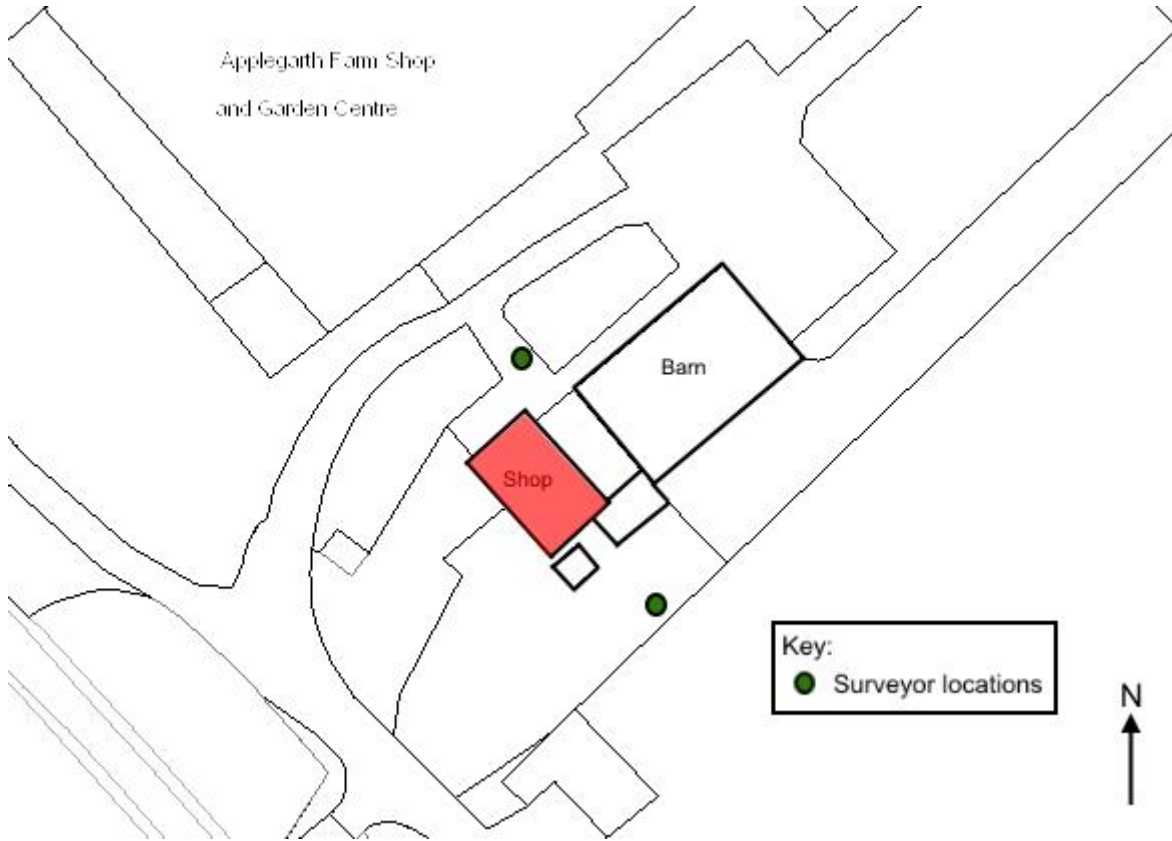


Figure 4. Plan showing bat activity (observations only) for the pre-dawn re-entry survey carried out on the Barn on the 30<sup>th</sup> August 2019. Arrows show direction of flight (where known).

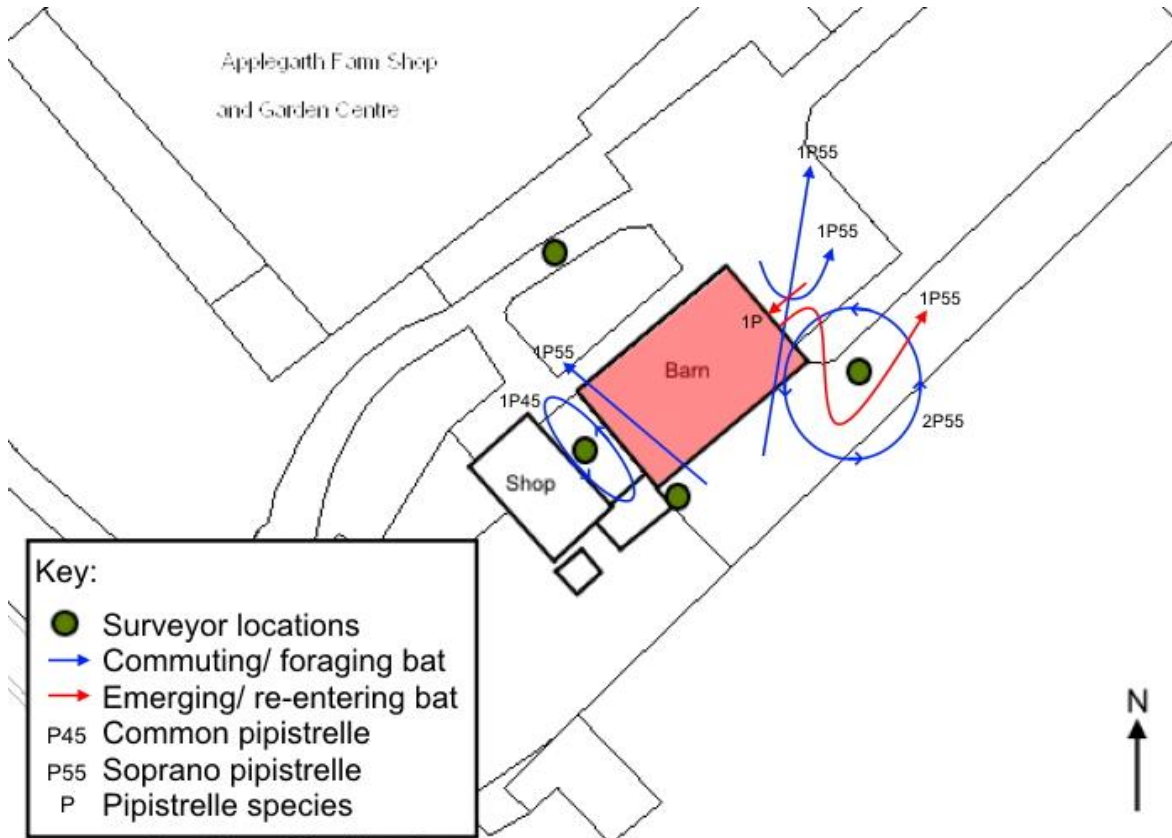


Figure 5. Plan showing bat activity (observations only) for the dusk emergence survey carried out on the Barn on the 11<sup>th</sup> September 2019. Arrows show direction of flight (where known).

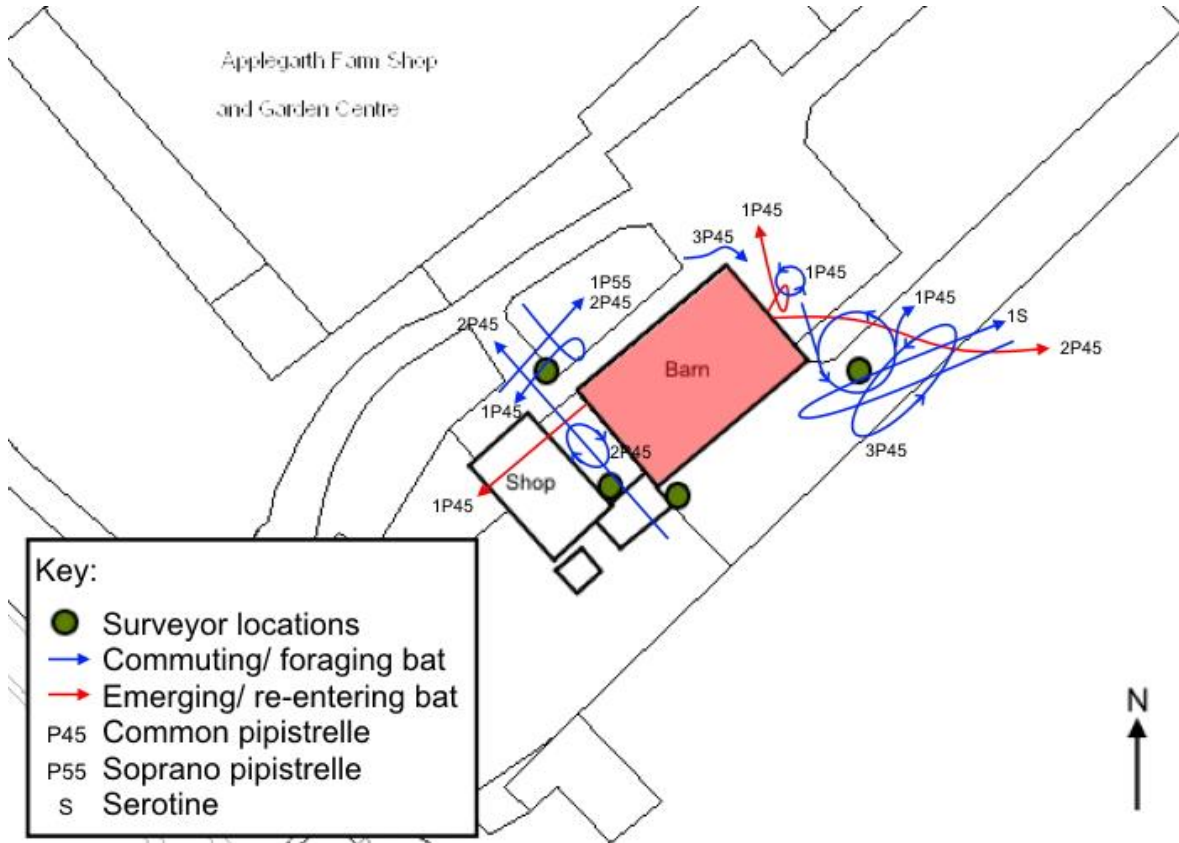


Figure 6. Plan showing bat activity (observations only) for the dusk emergence survey carried out on the Shop on the 16<sup>th</sup> September 2019. Arrows show direction of flight (where known).

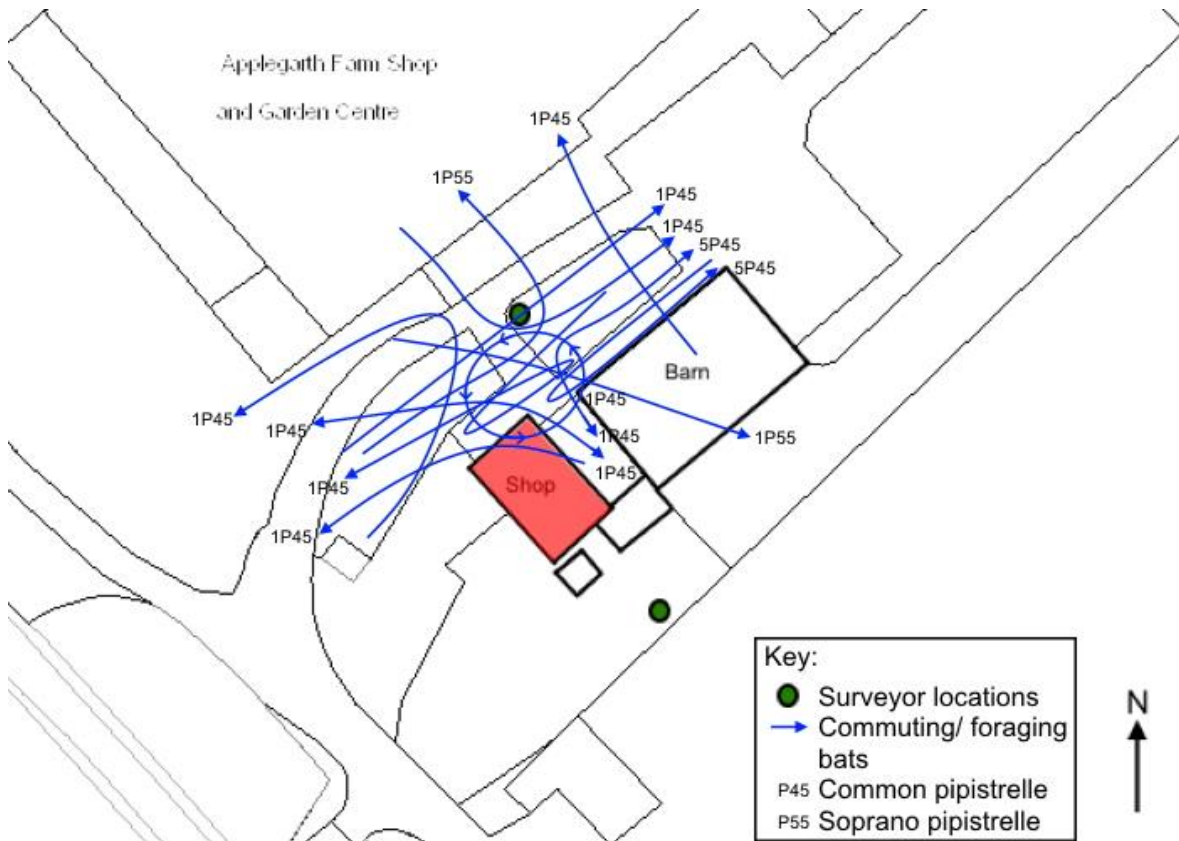


Figure 7. Plan showing bat activity (observations only) for the dusk emergence survey carried out on the Barn on the 24<sup>th</sup> September 2019. Arrows show direction of flight (where known).

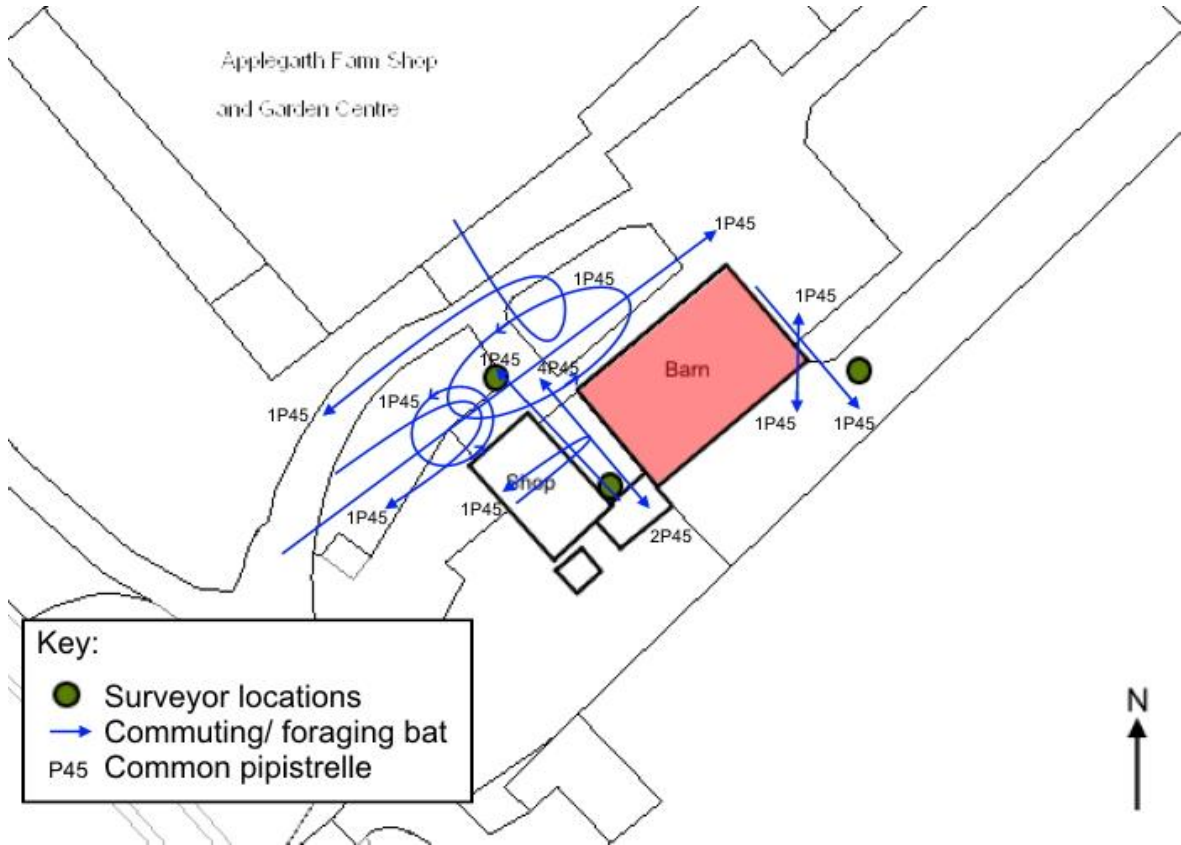


Figure 8. Plan showing bat activity (observations only) for the dusk emergence survey carried out on the Barn on the 31<sup>st</sup> August 2020. Arrows show direction of flight (where known).

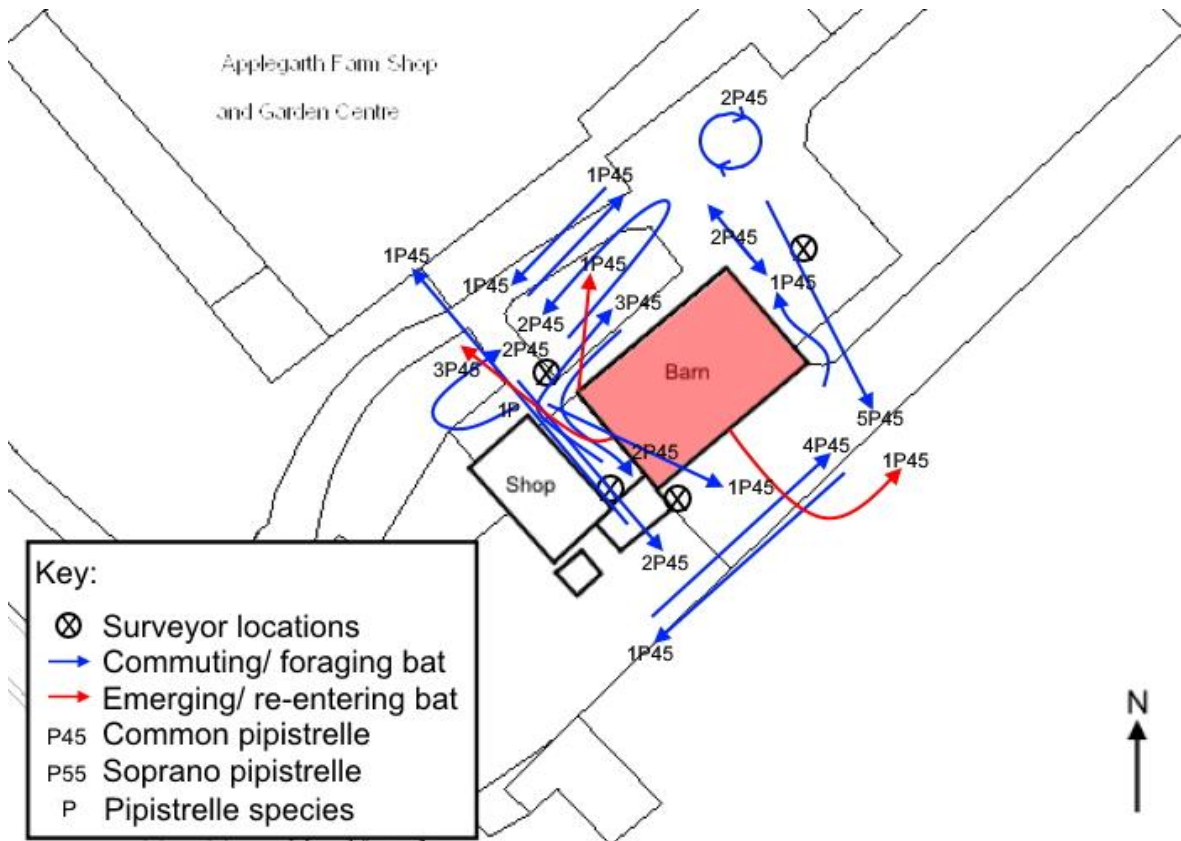
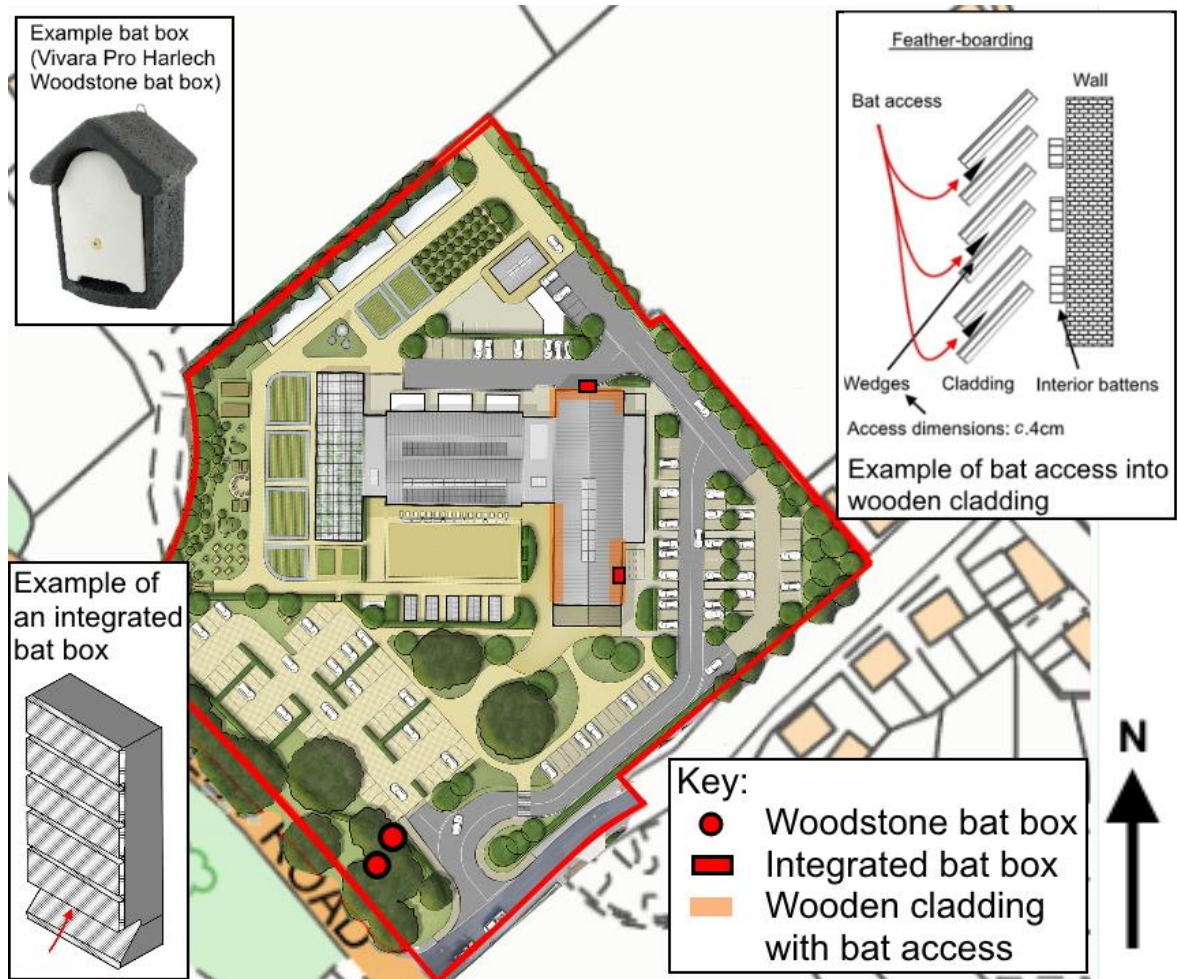




Figure 9. Plan showing the location of proposed mitigation on the site.



Collins, J. (ed) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3<sup>rd</sup> edition*. The Bat Conservation Trust, London.

Hampshire Ecological Services Ltd (2021). *Applegarth Farm, Headley Road, Grayshott, Hampshire, GU26 6JL*. Ecological Appraisal Report.

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Jonathan Cox Associates (2015). *Applegarth Vale Ecological Impact Assessment. Land off Headley Road, Grayshott, Hampshire*. (Unpublished).

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## 8 APPENDIX A: LEGISLATION

### 8.1 Legal context

All species of British bat are protected by the *Wildlife and Countryside Act 1981* (as amended) extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on the *Conservation of Habitats & Species Regulations 2017*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat (in such a way as to be likely to significantly affect: (i) the ability of a significant group of bats to survive, breed or rear/nurture their young; or (ii) the local distribution or abundance of the species concerned);
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present (bats tend to reuse the same roost).

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats & Species Regulations 2017* it is possible to apply for a European Protected Species (EPS) licence from Natural England. Licences are only issued where Natural England are satisfied that three derogation tests are met. These are: that the activity is for **imperative reasons of overriding public interest**; that there must be **no satisfactory alternative**; and that **favourable conservation status of the species must be maintained**.

Consideration of these three derogation tests was previously left to Natural England as part of their deliberations on whether to grant a licence for the development activity after a planning consent has been issued. However, the regulations now require that **all** public bodies, i.e. **Local Planning Authorities** (LPAs), have regard to the requirements of the European Habitats Directive when carrying out their functions. As a result, LPAs **must** address the three derogation tests when considering a planning application that could impact upon any European Protected Species (EPS).

## 8.2 *National planning context*

### 8.2.1 *General*

Surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/default.aspx>), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (*i.e.* in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

In addition to the above, *Section 40* of the *Natural Environment and Rural Communities Act (2006)* imposes a new duty on all public authorities to have regard for biodiversity.

### 8.2.2 *National Planning Policy Framework (NPPF)*

From the 24<sup>th</sup> July 2018, the Government published the revised National Planning Policy Framework. The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in March 2012. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- an economic objective;
- a social objective; and
- an environmental objective.

The environmental objective is to "*contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy*".

Planning policies and decisions should contribute to and enhance the natural and local environment by "*protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*" and "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*".

If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted.

Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

It states that "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

It should be noted that the "*presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined*".

The NPPF also encourages "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*" and aims to "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*". This applies to non-statutory designated sites including Sites of Importance for Nature Conservation (SINCs) and equivalent county wildlife sites.

Early engagement with all necessary stakeholders, including expert bodies, is encouraged by the NPPF.



**9 APPENDIX B: BAT ECOLOGY**

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Bats use different roosting sites throughout the year according to their life cycle requirements.

Hibernation during the winter months requires roosting sites that are cool and humid. As conditions improve through the spring, bats become increasingly active and tend to use transitional roosting sites. During the summer months, females give birth in maternity roosts. Maternity roosts tend to be warm and temperature-stable, which aids rapid development of the young, which are weaned in late summer. In the autumn, adult bats congregate in mating roosts and also use transitional roosting sites. Autumn is the time when both adults and juveniles have to build up fat reserves in preparation for hibernation through the winter months.

Bats also use roosts during the night as feeding perches. Species that catch large prey items such as moths (*e.g.* brown long-eared bat) often enter buildings to hang up and eat their prey before emerging again to forage. Such feeding perches tend to be obvious from scatterings of bat droppings with moth wings, which the bats discard.

Bats are at their most vulnerable during the summer in their maternity roosts, when disturbance can jeopardise their breeding success. Bats give birth to only one pup per year and young do not breed until the second or third year after birth. This means that if maternity colonies are disturbed there can be serious implications for the conservation status of populations.

Bats are also vulnerable during the winter hibernation period, when disturbance can reduce their chance of survival through the winter at a time when food is in short supply.

This is why there are often only narrow timeframes for bat survey and mitigation work.

## 10.1 Shop

<b>Date</b>	<b>28/08/2019</b>			
<b>Temp</b>	<b>19.2°C at start and 18.0°C at the end</b>			
<b>Weather</b>	<b>Light rain earlier but dry with 90% cloud cover and a light air (Beaufort scale 1)</b>			
<b>Ecologists</b>	<b>Calum Cooper &amp; Ben Willers</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	04:38		-	Ecologists commenced observations
BW	04:39	1	Common pipistrelle	Heard but not seen
BW	04:41	1	Common pipistrelle	Heard twice but not seen
CC	04:42	1	Common pipistrelle	Heard foraging and social calling but not seen
BW	04:49	1	Common pipistrelle	Heard four times but not seen
CC	04:49	1	Common pipistrelle	Heard but not seen
CC	04:50	1	Common pipistrelle	Heard but not seen
BW	04:53	1	Common pipistrelle	Heard foraging twice but not seen
CC	04:54	1	Common pipistrelle	Heard but not seen
BW	05:00	1	Common pipistrelle	Heard commuting but not seen
BW	05:09	1	Common pipistrelle	Heard foraging but not seen
BW	05:23	1	Common pipistrelle	Heard foraging but not seen
BW	05:45	1	Common pipistrelle	Heard but not seen
CC	05:46	1	Soprano pipistrelle	Heard but not seen
BW	05:48	2	Common pipistrelle	Heard but not seen
-	06:08	-	-	Sunrise
-	06:23	-	-	Ecologists ceased observations
<b>Date</b>	<b>16/09/2019</b>			
<b>Temp</b>	<b>17.7°C at start and 17.1°C at the end</b>			
<b>Weather</b>	<b>Light rain earlier but dry and overcast with a light air (Beaufort scale 1)</b>			
<b>Ecologists</b>	<b>Calum Cooper &amp; Ben Willers</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	19:01	-	-	Ecologists commenced observations
BW	19:11	1	Common pipistrelle	Commuting between the barn & shop then heading west
-	19:16	-	-	Sunset
BW	19:22	1	Common pipistrelle	Commuting over the shop then heading south-west
BW	19:33	1	Common pipistrelle	Foraging west over the barn & shop then south-west
BW	19:34	1	Common pipistrelle	Foraging and feeding to the west of the barn & shop
BW, CC	19:35	1	Soprano pipistrelle	Foraging east over the barn

CC, BW	19:38	1	Common pipistrelle	Foraging north-west over the barn
BW	19:39	1	Common pipistrelle	Commuting north-east passed the barn
BW	19:41	1	Soprano pipistrelle	Heard but not seen
BW	19:41	1	Soprano pipistrelle	Foraging west of the barn & shop
BW	19:42	1	Common pipistrelle	Foraging north-west of the barn
BW	19:43	1	Common pipistrelle	Foraging & social calling around the west corner of the barn
BW	19:45	1	Common pipistrelle	Foraging, feeding & social calling around the west corner of the barn
BW	19:45	1	Common pipistrelle	Foraging, feeding & social calling around the west corner of the barn
BW	19:46	1	Common pipistrelle	Foraging, feeding & social calling around the west corner of the barn
CC	19:46	1	Noctule	Heard but not seen
BW	19:48	1	Common pipistrelle	Foraging & feeding around the west corner of the barn
BW	19:51	1	Common pipistrelle	Commuting around the west corner of the barn
BW	19:52	1	Common pipistrelle	Commuting to the west of the shop
BW	19:52	1	Common pipistrelle	Commuting between the barn and shop then heading west
BW	19:52	1	Common pipistrelle	Commuting around the west corner of the barn
BW	19:53	1	Common pipistrelle	Foraging, feeding & social calling around the west corner of the barn
BW, CC	19:53	1	Common pipistrelle	Social calling around the west corner of the barn
BW, CC	19:54	1	Common pipistrelle	Heard foraging, feeding & social calling three times but not seen
BW	19:55	1	Common pipistrelle	Social calling around the west corner of the barn
BW	19:56	1	Soprano pipistrelle	Social calling around the west corner of the barn
BW	19:56	1	Common pipistrelle	Foraging and feeding to the west of the barn & shop
BW	19:57	1	Common pipistrelle	Heard foraging, feeding & social calling seven times but not seen
BW	19:58	1	Common pipistrelle	Social calling around the west corner of the barn
BW	20:00	1	Common pipistrelle	Heard foraging, feeding & social calling for three minutes but not seen
BW, CC	20:04	1	Common pipistrelle	Heard foraging, feeding & social calling for two minutes but not seen
CC	20:06	1	Common pipistrelle	Heard briefly but not seen
BW	20:07	1	Common pipistrelle	Heard social calling twice but not seen
BW	20:08	1	Common pipistrelle	Heard foraging, feeding & social calling for seven minutes but not seen
BW	20:14	1	Soprano pipistrelle	Heard briefly but not seen

BW	20:15	1	Common pipistrelle	Heard foraging, feeding & social calling for seven minutes but not seen
CC	20:18	1	Common pipistrelle	Heard commuting & social calling but not seen
CC	20:21	1	Common pipistrelle	Heard foraging but not seen
BW, CC	20:26	1	Common pipistrelle	Heard foraging & social calling but not seen
BW	20:35	1	Common pipistrelle	Heard social calling but not seen
BW, CC	20:37	1	Common pipistrelle	Heard foraging, feeding & social calling four times but not seen
BW	20:43	1	Common pipistrelle	Heard briefly but not seen
-	20:46	-	-	Ecologists ceased observations

## 10.2 Barn

<b>Date</b>	<b>30/08/2019</b>			
<b>Temp</b>	<b>15.0°C at start and 14.0°C at the end</b>			
<b>Weather</b>	<b>Cool and dry with 40% cloud cover and calm (Beaufort scale 0)</b>			
<b>Ecologists</b>	<b>John Poland, Calum Cooper, Claire Ford &amp; Ben Willers</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	04:47	-	-	Ecologists commenced observations
BW, CF	05:24	1	Soprano pipistrelle	Heard but not seen
<b>CC</b>	<b>05:31</b>	<b>1</b>	<b>Pipistrelle species</b>	<b>Re-entering a gap in the wooden cladding on the north-east gable end of the barn</b>
BW	05:32	1	Soprano pipistrelle	Heard briefly but not seen
CC	05:33	1	Soprano pipistrelle	Heard foraging but not seen
CF	05:41	1	Common pipistrelle	Circled around the south-west elevation
BW	05:44	1	Common pipistrelle	Heard but not seen
CF	05:44	1	Soprano pipistrelle	Commuting north-west over the barn roof
<b>CC</b>	<b>05:44</b>	<b>1</b>	<b>Soprano pipistrelle</b>	<b>Emerging from a gap in the wooden cladding on the north-east gable end of the barn</b>
CC	05:45	1	Soprano pipistrelle	Foraging and feeding at the north-east corner of the barn
CC	05:47	1	Soprano pipistrelle	Foraging at the north-east elevation of the barn
CC	05:48	1	Soprano pipistrelle	Heard but not seen
BW	05:48	1	Common pipistrelle	Heard briefly but not seen
CC	05:49	1	Soprano pipistrelle	Foraging and feeding at the north-east corner of the barn
JP	05:52	1	Pipistrelle species	Heard briefly but not seen
CC	05:53	1	Soprano pipistrelle	Foraging over the eastern corner of the barn heading north-east
-	06:12	-	-	Sunrise
-	06:27	-	-	Ecologists ceased observations
<b>Date</b>	<b>11/09/2019</b>			
<b>Temp</b>	<b>18.0°C at start and 18.2°C at the end</b>			

Weather	Warm, dry (light rain prior to start), overcast and calm (Beaufort scale 0)			
Ecologists	John Poland, Nicola Pyle, Calum Cooper & Sophie Jones			
Observer	Time	No.	Species	Observation
-	19:13	-	-	Ecologists commenced observations
<b>JP</b>	<b>19:27</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from the wooden cladding on the south-west elevation near the west corner of the barn</b>
-	19:28	-	-	Sunset
CC	19:51	1	Serotine	Heard but not seen
CC	19:52	1	Serotine	Foraging to the east of the barn
JP, NP	19:54	1	Common pipistrelle	Heard but not seen
NP	19:58	1	Common pipistrelle	Commuting around the north corner of the barn
CC	20:00	1	Common pipistrelle	Foraging near the north-east elevation of the barn
CC	20:01	1	Common pipistrelle	Heard but not seen
NP	20:01	1	Soprano pipistrelle	Commuting north-east to the west of the barn
JP, SJ	20:02	1	Common pipistrelle	Foraging north-west between the barn & shop
CC	20:02	1	Common pipistrelle	Foraging near the north-east elevation of the barn
CC	20:02	1	Common pipistrelle	Foraging near the east corner of the barn
NP	20:04	1	Common pipistrelle	Foraging to the west of the barn
NP	20:05	1	Common pipistrelle	Commuting around the north corner of the barn
JP	20:05	1	Common pipistrelle	Foraging north-west between the barn & shop
NP	20:06	1	Common pipistrelle	Commuting around the north corner of the barn, then foraging to the west of the barn until 20:09
CC	20:06	1	Common pipistrelle	Foraging near the east corner of the barn
JP, SJ	20:07	1	Common pipistrelle	Heard foraging & social calling but not seen
JP, SJ	20:09	1	Common pipistrelle	Heard foraging but not seen
CC	20:09	1	Common pipistrelle	Foraging near the east corner of the barn
JP, NP	20:10	1	Common pipistrelle	Foraging between the barn & shop and to the west until 20:20
<b>CC</b>	<b>20:10</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from the wooden cladding on the north-east elevation gable, then heading north</b>
<b>CC</b>	<b>20:12</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from the wooden cladding on the north-east elevation gable, then heading east</b>
NP	20:12	1	Common pipistrelle	Foraging between the barn & shop and to the west
CC	20:13	1	Common pipistrelle	Heard foraging but not seen
SJ, CC	20:15	1	Common pipistrelle	Heard foraging but not seen
SJ	20:17	1	Common pipistrelle	Heard commuting but not seen
<b>CC</b>	<b>20:20</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from the wooden cladding on the north-east elevation gable, then heading east</b>
SJ, CC	20:20	1	Common pipistrelle	Heard feeding but not seen
CC	20:21	1	Common pipistrelle	Heard foraging & social calling but not seen
CC	20:24	1	Common pipistrelle	Heard foraging four times but not seen
JP, SJ	20:25	1	Common pipistrelle	Foraging between the barn & shop until 20:32

SJ, CC	20:28	1	Common pipistrelle	Heard foraging but not seen
SJ	20:29	1	Common pipistrelle	Heard foraging but not seen
JP, SJ, CC	20:35	1	Common pipistrelle	Heard foraging but not seen
SJ, CC	20:37	1	Common pipistrelle	Heard foraging but not seen
JP, SJ	20:38	2	Common pipistrelle	Heard foraging & social calling but not seen
JP, SJ, CC	20:40	1	Common pipistrelle	Heard foraging until 20:58 but not seen
-	20:58	-	-	Ecologists ceased observations
<b>Date</b>	<b>24/09/2019</b>			
<b>Temp</b>	<b>16.2°C at start and 15.1°C at the end</b>			
<b>Weather</b>	<b>Mild, dry (light rain prior to start), overcast and calm (Beaufort scale 0)</b>			
<b>Ecologists</b>	<b>Calum Cooper, Chloe Mockridge &amp; Ben Willers</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	18:43	-	-	Ecologists commenced observations
-	18:58	-	-	Sunset
BW	19:18	1	Common pipistrelle	Heard foraging but not seen
CM	19:23	1	Serotine	Heard but not seen
BW	19:26	1	Common pipistrelle	Heard foraging but not seen
CM	19:27	1	Common pipistrelle	Commuting north-west between the barn & shop
BW	19:27	1	Common pipistrelle	Foraging near the west corner of the shop
BW	19:27	1	Common pipistrelle	Foraging north-east passed the barn & shop
CC, BW	19:27	1	Common pipistrelle	Heard but not seen
CM	19:28	1	Common pipistrelle	Heard but not seen
CM	19:28	1	Common pipistrelle	Commuting south-east between the barn & shop
CC	19:29	1	Common pipistrelle	Foraging north over the east corner of the barn
CC	19:29	1	Common pipistrelle	Foraging south over the east corner of the barn
CM, BW	19:29	1	Common pipistrelle	Foraging & feeding north-west between the barn & shop
CM	19:30	1	Common pipistrelle	Commuting north-west between the barn & shop
CM, BW	19:33	1	Common pipistrelle	Commuting north-west between the barn & shop
CC, CM	19:34	1	Common pipistrelle	Heard foraging but not seen
CC	19:34	1	Common pipistrelle	Foraging south-east passed the gable of the barn
CM	19:34	1	Serotine	Heard but not seen
CC, CM, BW	19:42	1	Common pipistrelle	Heard foraging two times but not seen
CC, CM	19:43	1	Common pipistrelle	Heard foraging two times but not seen
CC, CM, BW	19:44	1	Common pipistrelle	Heard but not seen
CC	19:46	1	Common pipistrelle	Heard foraging two times but not seen
CC, CM	19:53	1	Common pipistrelle	Heard foraging but not seen
CM, BW	19:53	1	Common pipistrelle	Foraging & feeding over the shop
CM, CC	19:55	1	Common pipistrelle	Foraging & social calling south-east between the barn & shop
CC	19:57	1	Common pipistrelle	Heard foraging & social calling but not seen

CC	19:58	1	Common pipistrelle	Heard but not seen
CM, BW	20:01	1	Common pipistrelle	Heard foraging but not seen
CM	20:02	1	Common pipistrelle	Heard foraging but not seen
CM, BW	20:06	1	Common pipistrelle	Heard foraging until 20:09 but not seen
CM, BW	20:11	1	Common pipistrelle	Heard foraging until 20:13 but not seen
CM, BW	20:14	1	Common pipistrelle	Heard foraging but not seen
CM, BW	20:18	1	Common pipistrelle	Heard foraging until 20: 21 but not seen
CM, BW	20:19	1	Common pipistrelle	Foraging & feeding north-west between the barn & shop
CM, BW	20:26	1	Common pipistrelle	Heard foraging & feeding but not seen
CM, BW	20:27	1	Common pipistrelle	Heard foraging but not seen
-	20:28	-	-	Ecologists ceased observations
<b>Date</b>	<b>31/08/2020</b>			
<b>Temp</b>	<b>10.0°C at start and 9.0°C at the end</b>			
<b>Weather</b>	<b>Dry with 0-20% cloud cover varying throughout and a calm air (Beaufort scale 0)</b>			
<b>Ecologists</b>	<b>Nicola Pyle, Andy Lomas, Ellie Welch &amp; Nathan Dixon</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	19:34	-	-	Ecologists commenced observations
-	19:49	-	-	Sunset
<b>AL, ND</b>	<b>20:12</b>	<b>3</b>	<b>Common pipistrelle</b>	<b>Emerging from the centre of the west side of the barn commuting north-west</b>
NP	20:13	1	Common pipistrelle	Circling west, north of the barn
AL	20:14	1	Common pipistrelle	Foraging east down the side of the barn and circling back commuting west
NP	20:16	1	Common pipistrelle	Commuting south along the east side of the barn
NP	20:18	1	Common pipistrelle	Circling west before commuting south along the east side of the barn
EW	20:18	1	Common pipistrelle	Heard foraging but not seen
ND	20:19	1	Common pipistrelle	Foraging south between the barn and the shop
NP	20:20	1	Common pipistrelle	Commuting north-west over north-east side of the barn
EW	20:21		Common pipistrelle	Commuting north-east along the north-east side of the barn
AL, ND	20:21	1	Common pipistrelle	Commuting east between the shop and the barn
AL	20:21	1	Common pipistrelle	Foraging east down the side of the barn and circling back commuting west
ND	20:22	1	Common pipistrelle	Foraging south between the barn and the shop
NP	20:22	1	Common pipistrelle	Commuting south along the east side of the barn
<b>EW</b>	<b>20:22</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerging from the centre of the north-east side of the barn, heading north</b>
NP	20:24	1	Common pipistrelle	Commuting back and forth along the north-east side of the barn
AL	20:25	1	Common pipistrelle	Heard social calls but not seen

ND	20:26	1	Common pipistrelle	Foraging west then heading east along the north-west side of the barn and shop
NP	20:26	1	Common pipistrelle	Commuting back and forth along the north-east side of the barn
AL	20:26	1	Common pipistrelle	Commuting north-east from south-west down the north-west side of the barn
AL	20:27	1	Common pipistrelle	Commuting north to south passing the north-west corner of the barn, between the barn and the shop
ND	20:28	1	Common pipistrelle	Foraging south between the barn and the shop
AL	20:29	2	Common pipistrelle	Commuting south to north, passing the north-west corner of the barn, between the barn and the shop
ND	20:30	1	Common pipistrelle	Foraging west then heading east along the north-west side of the barn and shop
ND	20:30	1	Common pipistrelle	Foraging and feeding north-west between the barn and the shop
EW	20:30	1	Common pipistrelle	Foraging north-east along the north-east side of the barn
ND	20:31	1	Pipistrelle species	Seen commuting north-west then heading south-east alongside the north-west side of the barn and the shop
AL, ND	20:32	1	Common pipistrelle	Commuting north to south passing the north-west corner of the barn, between the barn and the shop
AL, ND	20:33	1	Common pipistrelle	Commuting south to north, passing the north-west corner of the barn, between the barn and the shop
<b>AL, ND</b>	<b>20:34</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerging from the north-west corner of the barn and commuting north</b>
NP	20:34	1	Common pipistrelle	Heard but not seen
AL, EW	20:34	1	Common pipistrelle	Commuting south to north, passing the north-west corner of the barn, between the barn and the shop, then heading north-east along the north-east side of the barn
AL	20:35	1	Common pipistrelle	Heard but not seen
AL	20:36	1	Common pipistrelle	Heard but not seen
NP	20:37	1	Common pipistrelle	Commuting south along the east side of the barn
AL	20:37	1	Common pipistrelle	Commuting north-east from south-west down the north-west side of the barn
EW	20:38	1	Common pipistrelle	Commuting south-west along the north-east side of the barn
ND	20:38	1	Common pipistrelle	Foraging north-west between the barn and the shop
AL	20:38	1	Common pipistrelle	Heard but not seen
NP	20:39	1	Common pipistrelle	Commuting south along the east side of the barn
AL	20:39	1	Common pipistrelle	Commuting north-east from south-west down the north-west side of the barn



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EW	20:42	1	Common pipistrelle	Heard foraging but not seen
EW	20:49	1	Common pipistrelle	Commuting north-east along the north-east side of the barn
EW	20:51	1	Common pipistrelle	Heard briefly but not seen
EW	21:06	1	Common pipistrelle	Heard but not seen
-	21:19	-	-	Ecologists ceased observations