

**65 HOCOMBE ROAD, CHANDLERS
FORD, SOUTHAMPTON**

**DUSK EMERGENCE AND
DAWN RE-ENTRY BAT SURVEYS**

A Report to: [REDACTED]

Report No: RT-MME-158722-02

Date: September 2022



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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

Report Version	Date	Completed by:	Checked by:	Approved by:
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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

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VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In August 2022 Bruce Mitchell commissioned Middlemarch Environmental Ltd to undertake dusk emergence and dawn re-entry bat surveys at 65 Hocombe road, Chandlers Ford, Southampton. These surveys are required to inform a planning application associated with the reconfiguration of the single storey annexe, with proposals for a second story extension above and a single storey extension to the rear of the property.

Dusk emergence and dawn re-entry surveys were undertaken between 8th August 2022 and 6th September 2022.

Due to the presence of bat droppings within the loft void of the building and the high level of bat activity within the site, some of which was close to emergence and re-entry times for roosting bats, it is highly likely that bats have been and may continue to roost in the building. Therefore, no unlicensed works can be undertaken.

The trees situated to the south of the site are an important feature for foraging and commuting bats. It may also be possible that bats are using the trees to roost. The current proposals include the retention of the trees and hedgerows present within the site, however careful consideration to lighting should be made.

Following the results of the dusk emergence and dawn re-entry surveys, the following recommendations have been made:

R1 65 Hocombe Road

As a bat roost/resting place has been identified in at the property due to the presence of bat droppings and level of bat activity at the site, no unlicensed work can be undertaken which will contravene the legislation.

R2 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species.

R3 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In August 2022 Bruce Mitchell commissioned Middlemarch Environmental Ltd to undertake dusk emergence and dawn re-entry bat surveys at 65 Hocombe road, Chandlers Ford, Southampton. These surveys are required to inform a planning application associated with the reconfiguration of the single storey annexe, with proposals for a second story extension above and a single storey extension to the rear of the property.

Middlemarch Environmental Ltd has previously carried out a Preliminary Roost Assessment for Bruce Mitchell at this site. The findings of this survey are detailed in Report RT-MME-158722-01.

After a detailed assessment of the building, several potential roost or access features were identified. These included warped and lifted roof tiles and gaps under the hanging tiles. Bat droppings were scattered throughout the loft floor. The droppings resembled those of a brown long eared bat species and approximately 20 - 30 droppings were identified in total.

Based on the findings during the external and internal inspection and the surrounding habitats the building is classed as having high potential to support roosting bats.

Therefore, dusk emergence and dawn re-entry bat surveys were recommended. This report details the results of the surveys undertaken between 8th August 2022 and 6th September 2022.

All UK bat species are legally protected species and they are capable of being material considerations in the planning process. A summary of the legislation protecting bats is included within Appendix 1. This section also provides some brief information on the ecology of British bat species.

1.2 SITE DESCRIPTION AND CONTEXT

The development area is located at 65 Hocombe Road, Chandlers Ford, Southampton, centred at national grid reference SU 438227 and has an area of 0.17 ha.

At the time of the survey the site was dominated by a large two-storey brick residential building with associated hardstanding access and car parking. Areas of amenity grassland with scattered trees and introduced shrub were present in the north and south of the property. Residential housing and their associated gardens abutted the south, east and west boundaries, whilst Hocombe Road delineated the northern boundary.

The wider landscape comprises residential areas with associated gardens and treelines to the south, east and west of the site. Pockets of woodland and rural agricultural land is located to the north abutting Hocombe Road. Cranbury Park is present in the north with three substantial waterbodies within 1km of the site. The M3, a major railway and The River Itchen lie to the east.

1.3 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Survey Drawing 14566 S1	Solent Surveys

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken for the site which included a search for statutory nature conservation sites designated for bats within a 10 km radius of the site.

2.2 FIELD SURVEYS

2.2.1 Overview of Dusk Emergence and Dawn Re-entry Surveys

A bat roost has been identified within the building during the Preliminary Roost Assessment on the 4th August 2022. As such, in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), three bat surveys were carried out consisting of two dusk emergence bat surveys and one dawn re-entry bat survey. The aim of these surveys was to determine whether bats are roosting within the building, and to enable a profile of site utilisation by bats to be compiled.

2.2.2 Dusk Emergence Bat Surveys

In line with the specifications detailed in Bat Surveys: Good Practice Guidelines (Collins, 2016), the dusk surveys commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. The dusk emergence surveys were conducted using electronic bat detectors (Echo Meter Pro 2 with associated recording devices) to facilitate the detection of bats and to aid in the determination of species of bat using the site. Subsequent computer analysis of recordings allowed all species of bat using the site to be identified.

2.2.3 Dawn Re-Entry Bat Survey

Bats swarm at their roost site 10-90 minutes prior to entering the roost at dawn (Mitchell-Jones & McLeish, 2004). Surveying for dawn swarming by bats is an efficient way of detecting bat roosts. In line with the specifications detailed by Bat Surveys: Good Practice Guidelines (Collins, 2016) the dawn survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. To facilitate the detection of bats and to aid in the determination of species of bat using the site, the dawn survey was conducted using electronic bat detectors (Echo Meter Pro 2 with associated recording devices) and Bat Box Duet with associated recording devices). Computer analysis of bat detector information collected was utilised to identify all species recorded on the site.

3. DESK STUDY

3.1 STATUTORY NATURE CONSERVATION SITES

The site is not located within 10 km of any statutory nature conservation sites designated for the presence of bats.

4. SURVEY RESULTS

4.1 FIRST DUSK EMERGENCE SURVEY

The first dusk emergence survey was undertaken on the 8th August 2022 by Vicky Steyn (Ecological Project Officer) and Rebecca Thewlis (Ecological Field Officer). The weather conditions recorded at the time of the survey are detailed in Table 4.1.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	21	20
Cloud Cover (%)	20%	10%
Precipitation	0	0
Wind Speed (Beaufort)	F0	F1

Table 4.1: Weather Conditions During First Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:38hrs (BBC Weather Centre Data for Chandlers Ford). Three species of bat, common pipistrelle *Pipistrellus pipistrellus*, Serotine *Eptesicus serotinus* and Noctule *Nyctalus noctula* were recorded during the survey. Survey results are plotted on Drawing C158722-02-01 in Chapter 7.

Common pipistrelle

The first common pipistrelle was detected at 20:40 (2 minutes after sunset). This bat did not emerge from the property but commuted into the site from the south-east treeline. At 20:41, two more common pipistrelles commuted onto the site from the south-east treeline and foraged above the house for two minutes and commuted back to the south-east treeline. These bats did not emerge from the building.

Between 20:45 and 21:05, a common pipistrelle was seen foraging intermittently around the trees to the west. This bat did not emerge from the building. Further foraging at these trees was observed at 21:03, 21:11 and 21:17.

At 20:46 and again at 20:50, a common pipistrelle commuted from the south-east treeline to the west. This bat did not emerge from the building.

At 21:05, a common pipistrelle was seen foraging briefly in the garden of the property and then commuting west off site. This bat did not emerge from the building.

At 21:11, a common pipistrelle was seen commuting onto the site from the north-west and foraging over the building before commuting north-west again.

Serotine

The first serotine was detected but not seen at 21:09 foraging in the distance. This bat did not emerge from the building.

At 21:12, a serotine was seen circling the garden and then commuting north-east off site. This bat did not emerge from the building.

At 21:14, two serotines were seen commuting across the site from the south to north-east.

Between 21:15 and 21:23, a serotine was seen foraging at the front of the property and then exiting the site to the south. This bat did not emerge from the building.

At 21:28, a serotine was seen commuting south to north-east, across the site.

Noctule

The first noctule was detected at 21:13, this bat was not seen but detected commuting over the site.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not identify any further species of bat.

4.2 SECOND DUSK EMERGENCE SURVEY

The first dusk emergence survey was undertaken on the 25th August 2022 by Angel Fernandez (Senior Ecological Consultant and Licensed Bat Worker under bat class license 18 2018-35079) and Gillian Tetlow (Ecological Project Officer). The weather conditions recorded at the time of the survey are detailed in Table 4.2.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	19	17
Cloud Cover (%)	10%	10%
Precipitation	0	0
Wind Speed (Beaufort)	F1	F1

Table 4.2: Weather Conditions During Second Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:06hrs (BBC Weather Centre Data for Chandlers Ford). Four species of bat, common pipistrelle, Soprano pipistrelle *Pipistrellus pygmaeus*, Serotine and Myotis sp *Myotis sp* were recorded during the survey. Survey results are plotted on Drawing C158722-02-02 in Chapter 7.

Common pipistrelle

The first common pipistrelle was detected at 20:12 (6 minutes after sunset). This bat did not emerge from the property but commuted into the site from the south to the north over the house from the back garden. A second pipistrelle also commuted from south to north at 20:15, as well as a third common pipistrelle which commuted south-west to east along the back garden to the neighbouring garden.

Between 20:16 and 20:18, a common pipistrelle was seen foraging in the trees at the back of the garden. This bat did not emerge from any of the buildings.

At 20:23, a common pipistrelle commuted west to east and a second common pipistrelle did the same at 20:24.

At 20:26, a common pipistrelle commuted into the garden from the west, foraged briefly and then exited to the north. Two common pipistrelles were also observed foraging in the trees to the south of the garden.

At 20:44, a common pipistrelle was seen commuting south to north along the west side of the building.

At 20:54 and 20:59, a common pipistrelle was seen commuting along the western boundary.

At 21:00, a common pipistrelle was seen commuting south to north along the western boundary and then north to south along the eastern boundary. This bat was detected making social calls.

Serotine

The first serotine was seen at 20:32 commuting from the trees in the south to the north along the western hedgerow. This bat did not emerge from the building.

At 20:42 a serotine was seen commuting south to west along the gardens.

Soprano pipistrelle

The first soprano pipistrelle was seen at 20:36, commuting south to north over the side of the house. This bat did not emerge from the building.

Myotis

At 20:52, a myotis bat was detected but not seen commuting close to the western boundary. This bat did not emerge from the building.

A second myotis was detected but not seen commuting at 21:12.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not identify any further species of bat.

4.3 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 6th September 2022 by Angel Fernandez (Senior Ecological Consultant and Licensed Bat Worker under bat class license 18 2018-35079) and Gillian Tetlow (Ecological Project Officer). The weather conditions recorded at the time of the survey are detailed in Table 4.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	15	13
Cloud Cover (%)	0	100
Precipitation	0	0
Wind Speed (Beaufort)	F1	F1

Table 4.3: Weather Conditions During Dawn Re-entry Survey

The dawn re-entry survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. Sunrise was at 06:27 hrs (BBC Weather Centre Data for Chandlers Ford). Four species of bat, common pipistrelle, Soprano pipistrelle, Serotine and Myotis sp were recorded during the survey. Survey results are plotted on Drawing C158722-02-03 in Chapter 7.

Common pipistrelle

The first common pipistrelle was recorded but not seen at 04:42 (105 minutes before sunrise).

At 05:00, a common pipistrelle was seen foraging within the garden and commuted south.

At 05:09, a common pipistrelle was recorded social calling for several minutes.

Between 05:19 and 05:30, a common pipistrelle was heard social calling in the distance.

At 05:33, a common pipistrelle was seen commuting west to south.

At 05:38, two common pipistrelles were seen foraging around the trees to the south. One bat commuted off west at 05:43 and the second bat commuted off west at 05:48.

At 05:56, a common pipistrelle was seen commuting south to north over the east end of the house.

At 06:07 (20 minutes before sunrise), a common pipistrelle was seen commuting north to south over the house. This bat did not re-enter a roost site. A second common pipistrelle also commuted north to south over the house at 06:13 (14 minutes before sunrise) but did not re-enter a roost site.

Myotis

The first myotis was recorded at 05:09, foraging in the back garden of the property and then commuted south.

At 05:12, a myotis was detected but not seen foraging in the south.

At 05:37 (50 minutes before sunrise), a myotis was seen commuting east to west along the southern tree line.

Serotine

At 05:50 (37 minutes before sunrise), a serotine was detected but not seen commuting across the site.

Soprano pipistrelle

At 06:06 (21 minutes before sunrise), a soprano pipistrelle was seen foraging in the trees in the south of the site, and then commuted north over the east side of the building. This bat did not re-enter a roost site. No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

5. DISCUSSION AND CONCLUSIONS

5.1 DISCUSSION

5.1.1 Summary of Proposals

Planning proposals include the reconfiguration of the single storey annexe, with proposals for a second story extension above and a single storey extension to the rear of the property.

5.1.2 Summary of Dusk Emergence and Dawn Re-entry Surveys

Dusk Emergence Surveys

Five bat species was recorded during the dusk surveys: common pipistrelle, soprano pipistrelle, Serotine, Noctule and myotis. No bats were observed emerging from the building on site.

Commuting activity was recorded across the site, with some bats commuting close to the building. Foraging activity was recorded in the area of trees to the south of the site and within the garden of the property. Common pipistrelle bats were first recorded 2 minutes after sunset on the first survey and 6 minutes after sunset on the second survey suggesting those bats are likely roosting close to the site in neighbouring properties or trees.

Dawn Re-entry Survey

Four bat species was recorded during the dawn survey: common pipistrelle, soprano pipistrelle, Serotine and myotis. No bats were observed re-entering the building on site.

Commuting activity was recorded across the site, with some bats commuting close to the building. Foraging activity was recorded in the area of trees to the south of the site and within the garden of the property. Common pipistrelle bats were last recorded 14 minutes before sunrise suggesting those bats are likely roosting close to the site in neighbouring properties or trees.

5.2 CONCLUSIONS

Due to the presence of bat droppings within the loft void of the building and the high level of bat activity within the site, some of which was close to emergence and re-entry times for roosting bats, it is highly likely that bats have been and may continue to roost in the building. Although a bat emergence or re-entry was not observed in the surveys, as bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected, whether or not bats are present at the time of surveys. The building has been confirmed as a bat roost during the Preliminary Roost Assessment. Bat droppings were scattered throughout the loft floor. The droppings resembled those of a brown long eared bat species and approximately 20 - 30 droppings were identified in total. This suggests that the building was used as a day roost for a low number of brown long-eared bats.

Therefore, no unlicensed works can be undertaken. A recommendation regarding the licence application is made in Chapter 6.

The trees situated to the south of the site are an important feature for foraging and commuting bats. It may also be possible that bats are using the trees to roost. The current proposals include the retention of the trees and hedgerows present within the site, however careful consideration to lighting should be made and a recommendation is made in Chapter 6.

6. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's 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.

R1 65 Hocombe Road

As a bat roost/resting place has been identified in at the property due to the presence of bat droppings and level of bat activity at the site, no unlicensed work can be undertaken which will contravene the legislation outlined in Appendix 1.

Examples of works which will breach this legislation include:

- Roof modifications/repairs/removal;
- Timber treatment;
- Noise, vibrations and storage of odorous and dangerous chemicals;
- Alterations to bat entrance/exit points;
- Investigations works in the roof as this can cause bats to abort their young/awake from hibernation and can alter the roof temperature/humidity; and,
- Works in the main body of the building.

N.B. This is not an exhaustive list and a bat worker should be consulted to determine if the works are likely to breach any legislation.

Prior to any works being undertaken which are likely to result in a breach of the legislation, a development licence must be obtained from Natural England. The licence application process will include the submission of a method statement detailing the current status of bats on site and how the favourable conservation status of the bat population will be maintained. Prior to a licence being issued, planning permission must be granted and relevant conditions relating to protected species and habitat issues must be discharged.

Dusk emergence and dawn re-entry survey data, in line with Bat Surveys: Good Practice Guidelines published by the Bat Conservation Trust (Collins, 2016), is required to inform the licence application. To ensure that the data submitted is current and appropriate for assessment by Natural England surveys need to be carried out during the peak bat activity season closest to the start date of the proposed development. The peak bat activity season extends from May to August. An appropriate level of survey work has been undertaken within this study, however should any delays occur in the planning process which results in a delay in the bat licence application beyond March 2023, the bat activity surveys may have to be updated.

DNA analysis of the bat droppings found in the loft void may be required for the licence to determine the species present.

R2 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:

- Avoiding the installation of new lighting in proximity to key ecological features, such as hedgerows and tree lines.
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.

- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.

R3 Habitat Enhancement

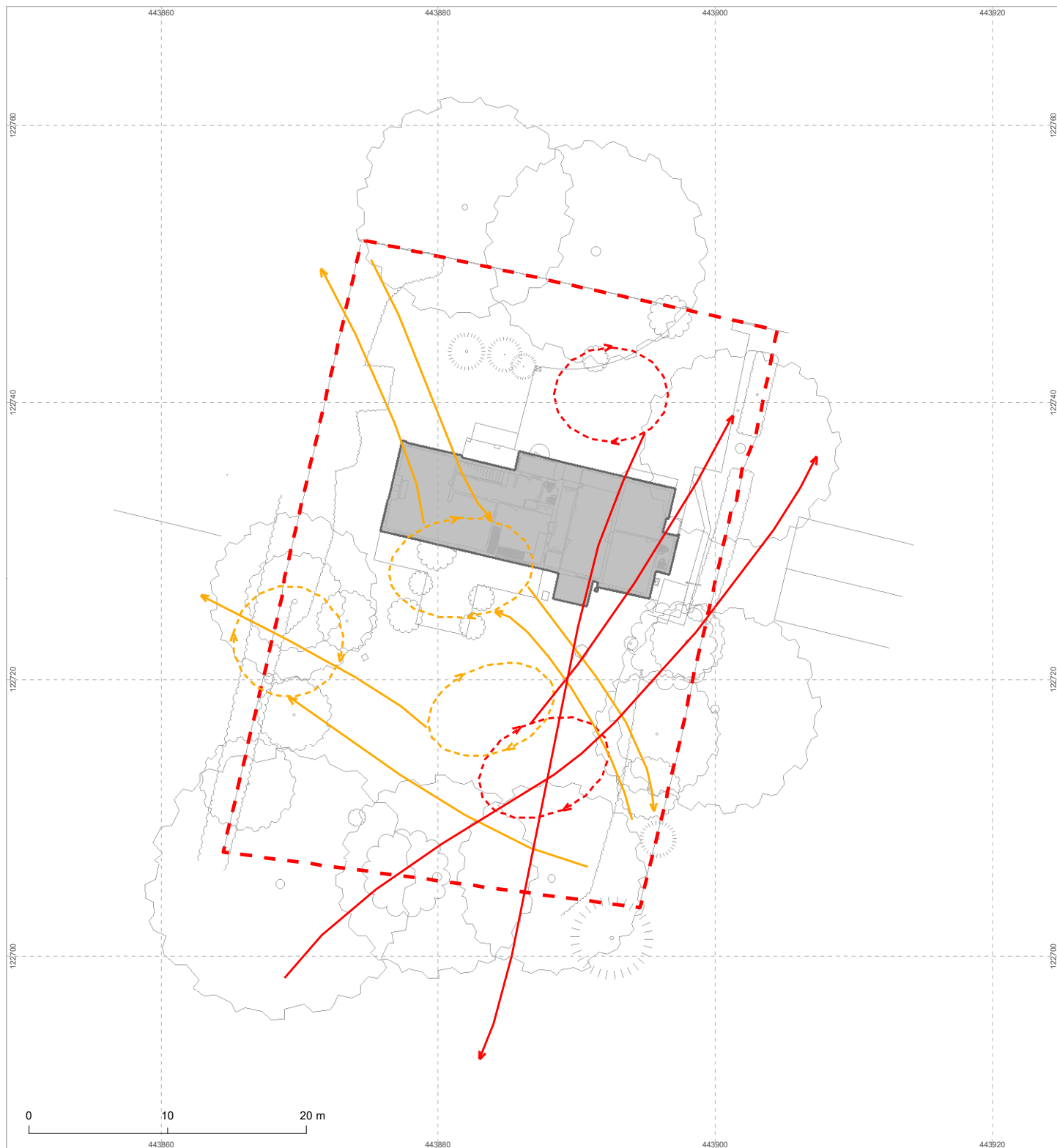
In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.

7. DRAWINGS

Drawing C158722-02-01 – First Dusk Emergence Survey

Drawing C158722-02-02 – Second Dusk Emergence Survey

Drawing C158722-02-03 – Dawn Re-entry Survey



Legend

- Site boundary
- Building surveyed
- Common pipistrelle commuting
- - - - - Common pipistrelle foraging
- Serotine commuting
- - - - - Serotine foraging

Project 65 Horcombe Road, Chandlers Ford	
Drawing First Dusk Emergence Survey (08/08/2022)	
Client [REDACTED]	
Drawing Number C158722-02-01	Revision 00
Scale @ A4 1:400	Date September 2022
Approved By PR	Drawn By RP

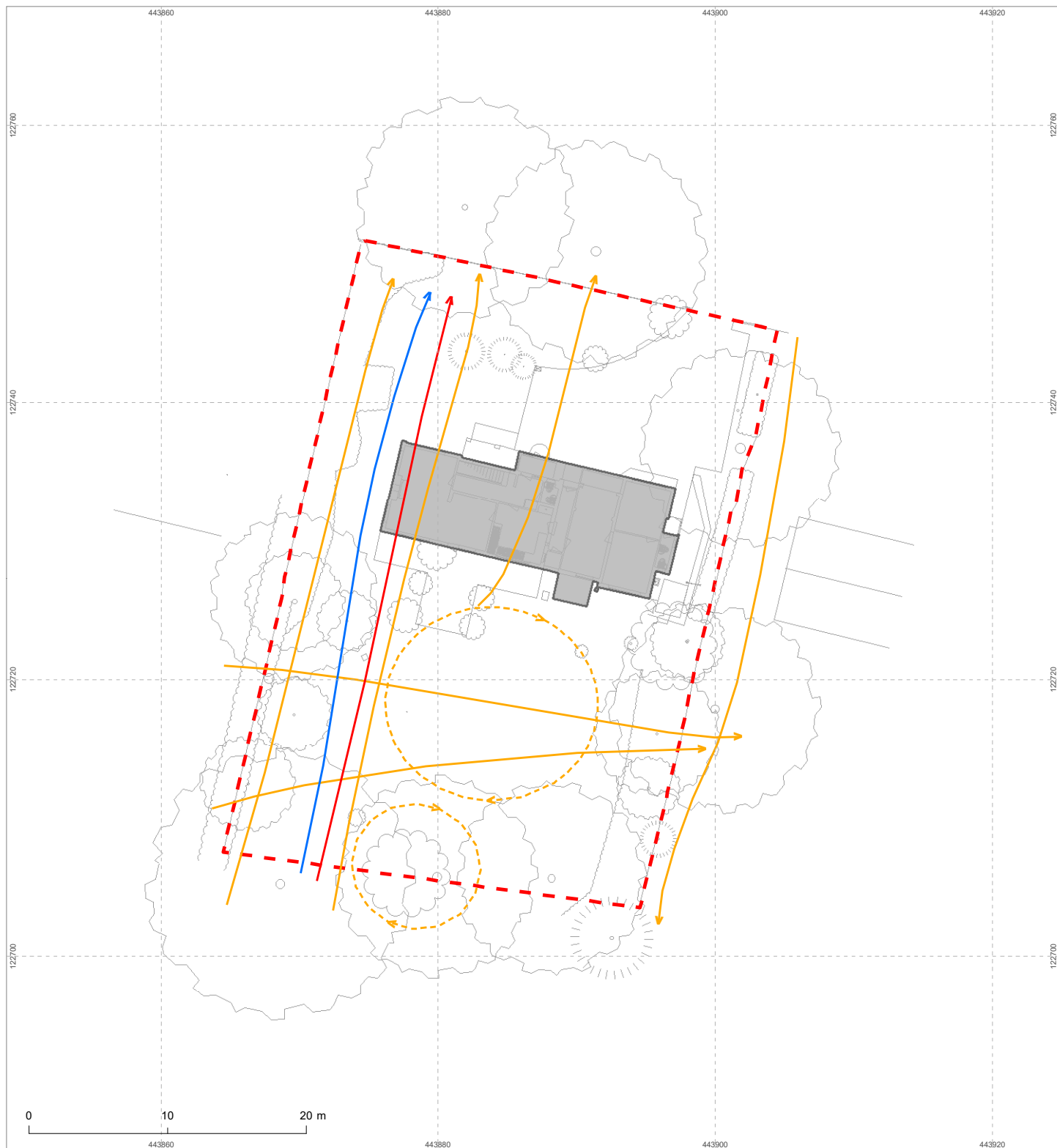


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C158722-02-01



Legend

- Site boundary
- Building surveyed
- Common pipistrelle commuting
- > Common pipistrelle foraging
- Serotine commuting
- Soprano pipistrelle commuting

Project 65 Horcombe Road, Chandlers Ford	
Drawing Second Dusk Emergence Survey (25/08/2022)	
Client [REDACTED]	
Drawing Number C158722-02-02	Revision 00
Scale @ A4 1:400	Date September 2022
Approved By PR	Drawn By RP

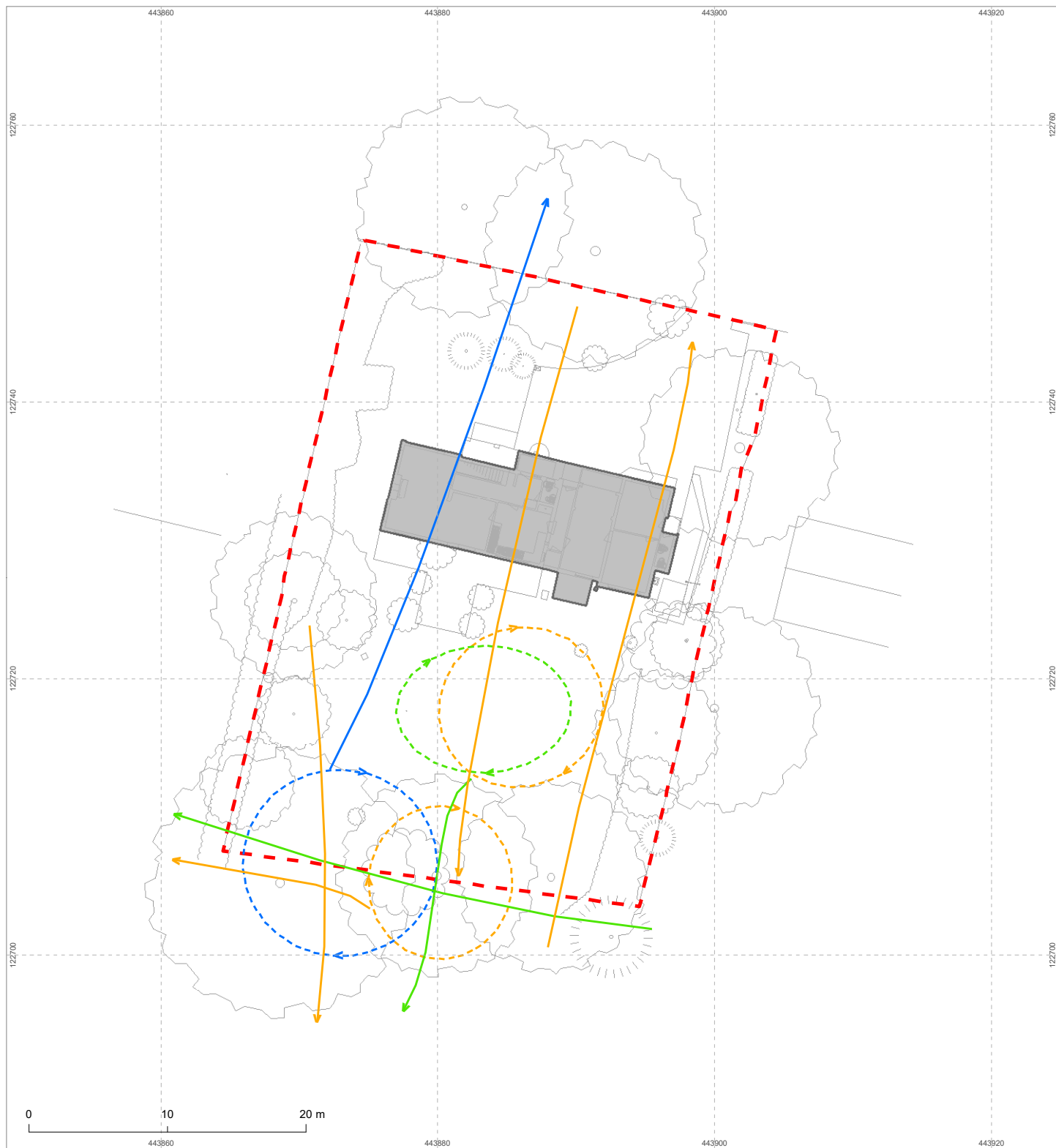


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C158722-02-02



Legend

- Site boundary
- Building surveyed
- Common pipistrelle commuting
- - - Common pipistrelle foraging
- Myotis sp. bat commuting
- - - Myotis sp. bat foraging
- Serotine commuting
- Soprano pipistrelle commuting
- - - Soprano pipistrelle foraging

Project 65 Horcombe Road, Chandlers Ford	
Drawing Dawn Re-entry Survey (06/09/2022)	
Client [REDACTED]	
Drawing Number C158722-02-03	Revision 00
Scale @ A4 1:400	Date September 2022
Approved By PR	Drawn By RP



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C158722-02-03

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APPENDIX 1

LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CROW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The reader should refer to the original legislation for the definitive interpretation.

For England:

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.

ECOLOGY

At present, 18 species of bats are known to live within the United Kingdom, of which 17 species are confirmed as breeding. All UK bat species are classed as insectivorous, feeding on a variety of invertebrates including midges, mosquitoes, lacewings, moths, beetles and small spiders.

Bats will roost within a variety of different roosting locations, included houses, farm buildings, churches, bridges, walls, trees, culverts, caves and tunnels. At different times of the year the bats roosting requirements alter and they can have different roosting locations for maternity roosts, mating roosts and hibernation roosts. Certain bat species will also change roosts throughout the bat activity season with the bat colony using the site to roost for a few days, abandoning the roost and then returning a few days or weeks later. This change can be for a variety of reasons including climatic conditions and prey availability. Bats are known live for several years and if the climatic conditions are unfavourable at a particular roost, they may abandon it for a number of years, before returning when conditions change. Due to the matriarchal nature of bat colonies, the locations of these roosts can be passed down through the generations.

Bats usually start to come out of hibernation in March and early April (weather dependent), when they start to forage and replenish the body weight lost during the hibernation period. The female bats then start to congregate together in maternity roosts prior to giving birth and a single baby is born in June or July. The female then works hard to feed her young so that they can become independent and of a sufficient weight to survive the winter before the weather gets too cold and invertebrate activity reduces. Males generally live solitary lives, or in small groups with other males, although in some species the males can be found living with the females all year. The mating season begins in the autumn. During the winter bats hibernate in safe locations which provide relatively constant conditions, although they may venture outside to forage on warmer winter nights.