Bat Emergence and Re-entry Surveys

18 Fairfield Road, Bosham, West Sussex PO18 8JH

Melanie Kent

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Industry Guidelines and Standards

This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

Proportionality

> The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.
>
> The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.
>
> (BS 42020, 2013)

Executive Summary

Arbtech Consulting Limited was instructed by Melanie Kent to undertake Bat Emergence and Re-entry Surveys (BERS) at 18 Fairfield Road, Bosham, West Sussex PO18 8JH (hereafter referred to as "the site"). The survey was required to inform a planning application for 'Single storey side extension, new rear terrace, re-cladding, alterations to roof, enlarging dormer, replace roof tiles with slates, removal of the chimney, PV panels on roof, new single garage and air source heat pump in front garden and new shed in the rear garden.' (hereafter referred to as "the proposed development").

The following bat roosts were identified at the site:

- Maternity roost of 39 soprano pipistrelles (peak count) in B1
- Day roost of 1 common pipistrelle in B1

An EPSL application to Natural England will be required to legally permit the proposed works. The EPSL application requires that surveys have been undertaken within the most recent active bat season (May to September) and planning permission must have been granted and all relevant wildlife-related conditions have been discharged prior to submission, where possible. The EPSL will deal with any mitigation and compensation measures that will be required for the proposed development to comply with the standing advice and will be designed to reduce any impacts to an acceptably low level so as to maintain (or enhance) the Favourable Conservation Status (FCS) of the local bat population.

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1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Melanie Kent to undertake Bat Emergence and Re-entry Surveys (BERS) at 18 Fairfield Road, Bosham, West Sussex PO18 8JH (hereafter referred to as "the site"). The survey was required to inform a planning application for 'Single storey side extension, new rear terrace, re-cladding, alterations to roof, enlarging dormer, replace roof tiles with slates, removal of the chimney, PV panels on roof, new single garage and air source heat pump in front garden and new shed in the rear garden.' (hereafter referred to as "the proposed development"). A plan showing the proposed development is provided in Appendix 1.

The aim of the BERS was to determine the presence or likely absence of roosting bats and to characterise any roosts present. This has been undertaken with due consideration to the "Bat Surveys for Professional Ecologists —Good Practice Guidelines" publication (Collins, 2016).

The BERS have been informed by a Preliminary Roost Assessment (PRA) which was completed by Arbtech on 20/07/2023.

The results and recommendations from the PRA is as follows:

Survey conclusions (with justification)	***Foreseen impacts***	***Recommendations*** *Measures required to adhere to guidance, legislation and planning policies.*
B1 has high habitat value for bats, and is a confirmed maternity roost of a crevice dwelling species at the front gable end. Further roosts are likely present under hanging tiles and roof tiles. The pond and stream provide valuable foraging resources that support the continued success of the colony.	Any works to the cladding, roof, eaves, hanging tiles, dormer window could damage or destroy bat roosts and bats could be injured or killed.	Three bat emergence or re-entry surveys are required during the active bat season (May – September) to characterise the roosts present. Two of the surveys should be completed during the optimal survey period May to August inclusive. September is sub-optimal as maternity roost will have split up by then. Three surveyors are required to provide full coverage of the building. Surveys are likely to be required before planning permission can be granted. Any works that impact bat roosts will need to be permitted by a bat licence (EPSL) from Natural England. Licences can be obtained once planning has been granted and within 3 months of the start of works. Any wildlife related planning conditions need to have been discharged. EPSLs must be supported by up to date survey information, so at least some survey effort must have been carried out in the summer preceding the licence submission.

1.2 Site Location and Landscape Context

The site is located at National Grid Reference SU80870419 and has an area of approximately 0.1ha of dwelling, garage, pond, stream and gardens. The site is in a residential area in close proximity to Chichester Harbour and its associated habitats and designations. A site location plan is provided in Appendix 2.

1.3 Scope of the Report

This report provides a description of the bat activity observed and recorded during BERS. The aim of the surveys was to determine the presence or likely absence of bats and to characterise any roosts present including species, number of individuals, number and location of roost access points, and to gain an understanding of how bats use the site. The report provides information on possible constraints to the proposed development as a result of bats and summarises the requirements for any mitigation proposals, including a European Protected Species Licence (EPSL), where appropriate, to achieve planning or other statutory consent and to comply with wildlife legislation. To achieve this, the following steps have been taken:

- BERS of built structures has been undertaken to determine the presence or likely absence of bat roosts.
- An outline of potential impacts on any confirmed or unidentified roosts has been provided, based on the proposed development.
- Recommendations for mitigation have been made, along with advice on the requirements for a European Protected Species Licence (EPSL) application if appropriate.
- Opportunities for the enhancement of the site for roosting, foraging and commuting bats have been set out.

2.0 Methodology

2.1 BERS

Three BERS, comprising dusk emergence surveys were undertaken of building B1, as per the recommendations from the Preliminary Roost Assessment. The surveys involved surveyors positioned around the building ensuring that all elevations and roof sections with suitable roosting features could be clearly observed. Particular attention was paid to the areas of the building/tree/structure identified as providing suitable access points to bat roosts. Each surveyor was assigned an area of the building to observe for the duration of the survey.

Surveyors used heterodyne and frequency division bat detectors, and Echo Meter Touch detectors connected to iPads or Android tablets. Bat echolocation calls recorded during the surveys were analysed using Wildlife Acoustics sound analysis software Kaleidoscope V3.1.7 when required. The Echo Meter Touch includes an auto ID function for bat species, however this is not 100% accurate and further post-survey sound analysis is often required to confirm species that could not be identified by the auto ID software during the survey. Surveyors also used head torches, survey record sheets and pens/pencils for recording all activity observed during the surveys. Each surveyor was also provided with a hand-held radio for communication between surveyors to assist with confirming ambiguous bat activity e.g. a bat emergence or a bat passing over the building.

Four infra-red recordings kits were set up to monitor the building during the BERS; two pairs Nightfox Red Goggles, one pair Nightfox Whisker Goggles and a Canon XA15, each with an infra-red lamp alongside to provide additional illumination. Analysis of the footage was subsequently undertaken to detect roosting activity.

Dusk emergence surveys commenced 15 minutes before sunset and continued for 1½ - 2 hours after sunset – depending upon bat activity and surveyor visibility. Surveys were a minimum of two weeks apart.

Surveys were completed during optimal weather conditions i.e., when temperatures were above 10°C, with no rain or strong winds (greater than 5m/s), as these adverse weather conditions can impact upon bat emergence and foraging behaviour. Periods of high moon illuminance (>80%) were also avoided insofar as possible as this can reduce bat activity.

2.2 Surveyors

A total of three surveyors were used to cover building B1. The name, bat licence details or level of bat survey experience and the designated position of each surveyor during each survey is detailed in the tables in Section 3.1 below and shown on the plan in Appendix 3.

2.3 Bat Roost Characterisation

When bat roosts are present, the bat surveys undertaken at a site facilitate the characterisation of the roost type. This allows for appropriate mitigation and compensation to be designed to inform a European Protected Species Licence (EPSL) application to Natural England.

The definitions of bat roost types are provided below, taken from the *Bat Mitigation Guidelines* (English Nature, 2004) and the Bat Conservation Trust (BCT) publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, 2016).

Day roost: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
Night roost: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
Feeding roost: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.
Transitional / occasional roost: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Swarming site: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites
Mating sites: sites where mating takes place from later summer and can continue through winter.
Maternity roost: where female bats give birth and raise their young to independence.
Hibernation roost: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity. Sites where hibernating bats have been confirmed by appropriate survey effort should be classed as 'hibernation confirmed'.
Satellite roost: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.
Other: roost types are interchangeable and not always easy to classify according to the nuances of certain species.

2.4 Limitations

These surveys follow best practice guidance to confirm presence or likely absence of roosting bats and where present, characterise the roost. However, this information is collected at finite dates and times, and provides an indication of the conditions on site only. The use of the building, and the site as a whole by bats, at all times cannot be established based on this information. Bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time.
The third surveyor on the second survey was unable to attend. The two remaining surveyors used infra-red cameras in order to cover the third position, as well as the rest of the building. As full coverage was achievable this is not considered to be a significant limitation.

3.0 Results and Evaluation

3.1 Survey Results

The results of each survey are provided in the tables below and shown on the plan in Appendix 3. The surveys were designed and managed by Natalie Evans, Principal Consultant and Bat Licence Lead, Natural England Bat licence number 2018-37888-CLS-CLS

Table 1: Survey results (first visit)

Date		27/07/2023	
Building inspection prior to survey		The external roost features identified during the PRA were subject to a ground level inspection prior to the BERS to check for evidence of roosting bats. Dozens of bat droppings could be seen stuck to the window above the flat roofed porch on the eastern elevation of B1.	
Start and end times		20:30 – 22:30 Sunset: 20:57	
Weather conditions		**Start:** Temp: 19.1°C Relative Humidity: 87% Cloud Cover: 100% Wind: 0mph Rain: None Moon illuminance: 0%	**End**: Temp: 18.2°C Relative Humidity: 95% Cloud Cover: 100% Wind: 0mph Rain: None Moon illuminance: 10%
Surveyor (position) **As shown in Appendix 3**		**Joanna Andrews** – Accredited Agent on Natural England Bat Licence Number: 2018-37888-CLS-CLS, 11 years bat survey experience - Position 1 – observing the east facing elevations and roof structures of B1 **Matthew Surry** - 3 years bat survey experience - Position 2 – observing the south facing elevations and roof structures of B1 **Ryan Tessier** – 4 years bat survey experience – Position 3 – observing the north and west facing elevations and roof structures of B1	
IR position **As shown in Appendix 3**		Position 1 - observing the eastern elevation and roof structures of B1	
Building reference	**Surveyor position**	**Notes/observations:** **Total soprano pipistrelle emergences: 39** **Total soprano pipistrelle re-entries: 1**	
B1	1	**Between 20:49 and 21:29 a total of 39 soprano pipistrelles *Pipistrellus pygmaeus* emerged from a hole in the timber cladding above the right hand side first floor window on the east facing elevation of B1. At 21:16 one soprano pipistrelle was seen re-entering the roost through**	

		the same gap as the emergences recorded. After emerging the bats all flew toward the surveyor in position 2 before leaving the site either through the tree line, or across the pond, to the south west of B1. Emergence/re-entry point shown below, circled in red.   Five passes by soprano pipistrelles heading in a north easterly direction across the garden areas to the south, then the east, of B1 were observed at 21:05, 21:14, 21:24, 21:30 and 22:01. Two passes by common pipistrelles *Pipistrellus pipistrellus* were noted, the first at 21:04 was heard but not seen, the second was seen at 21:16 between surveyors 1 and 2. At 21:50 and 21:52 passes by a brown long-eared bat *Plecotus auritus* were seen in the garden area to the south east of B1. The first pass recorded the bat flew in an anti-clockwise direction around the house, the second pass was from the drive to the north east of B1 into the south east garden area.
B1	2	Between 20:49 and 21:37 the soprano pipistrelles that emerged from the eastern elevation were seen heading clockwise around the building toward the surveyor before heading off site, both through the tree line and over the pond to the south west of B1. Several passes in an easterly direction across the garden area to the south were also recorded. Unseen passes by common pipistrelles noted at 21:04, 21:17 and 21:32. At 21:50 a brown long-eared bat was seen heading across the southern garden area toward the surveyor in position 1.

B1	3	A distant unseen pass by a soprano pipistrelle was heard at 20:52, then at 21:16 one was seen heading in a north westerly direction across the garden to the west of B1. Feeding activity by a common pipistrelle was observed at 21:16 in the north west corner of the garden. One common pipistrelle was seen following the same flight path as the soprano pipistrelle at 21:29, then at 21:32 one was seen flying the reverse of this flight path. At 21:33 a common pipistrelle was heard but the bat was not seen. At 21:51 a call from a brown long-eared bat was recorded but the bat was unseen.
Building reference	**IR position**	**Notes/observations:**
B1	1	 **The 39 soprano pipistrelle emergences and 1 re-entry observed by the surveyor in position 1 were confirmed on review of the IR video footage.** The other bat passes recorded in surveyor 1's observations were also confirmed by the IR video.
Other observations		

Table 2: Survey results (second visit)

Date		15/08/23	
Building inspection prior to survey		No external evidence of bats was found at ground level prior to the survey. No internal inspection was conducted.	
Start and end times		19:50 – 22:25 Sunset: 20:24	
Weather conditions		**Start:** Temp: 16.5°C Relative Humidity: 86% Cloud Cover: 10% Wind: 2mph Rain: None Moon illuminance: 10%	**End**: Temp: 14.9°C Relative Humidity: 95% Cloud Cover: 10% Wind: 0mph Rain: None Moon illuminance: 10%
Surveyor (position) **As shown in Appendix 3**		**Natalie Evans, (Natural England Bat Licence Number: 2018-37888-CLS-CLS).** Position 1 – observing the southern and eastern elevations and roof structures of B1 **Jonathan Kewell (10 years bat survey experience**) - Position 2 – observing the southern, eastern and western elevations and roof structures of B1	
IR position **As shown in Appendix 3**		Position 1 - observing the southern and eastern elevations and roof structures of B1 Position 2 – observing the southern, eastern and western elevations and roof structures of B1 Position 3 – observing the northern and western elevations and roof structures of B1 Position 4 – observing the southern, eastern and western elevations and roof structures of B1	
Building reference	**Surveyor position**	**Notes/observations:**	
B1	1	**A common pipistrelle emerged from the top-left corner of the right-hand window on the eastern elevation (shown below) at 20:37, flying clockwise around B1.**	

		 Regular passes (approximately one every minute) by common and soprano pipistrelles were observed throughout the survey, with the vast majority of activity along the east-west hedge-line directly south of B1. At 20:54 a serotine was observed flying north over B1. A myotis was heard but not seen at 21:21. A noctule was heard but not seen at 21:24. A brown long-eared bat was heard but not seen at 21:31.
B1	2	**Between 20:20 and 20:37, 32 soprano pipistrelles emerged from the top of the south-eastern corner of the dormer in the southern elevation of B1 (shown below).**

		 Passes around B1 in an anti-clockwise direction, and episodes of feeding over the south-western pond by both soprano and common pipistrelles from 20:25 until the end of the survey were noted, with approximately one pass every thirty to sixty seconds. At 20:54 a serotine flew north over B1. At 21:06 and again at 21:15 a myotis was observed feeding around the south-western pond for one minute.
Building reference	**IR position**	**Notes/observations:**

B1	1	 **The common pipistrelle emergence detailed by surveyor 1 was recorded by IR 1.** Several of the emerging soprano pipistrelles from the southern dormer were recorded flying away from the building by IR 1. A large number of these bats were then seen feeding in the left corner of the video. A noctule was recorded passing over the trees on the left at 21:24.

B1	2	 **The 32 soprano pipistrelle emergences detailed by surveyor 2 were recorded by IR 2.** Passes by soprano and common pipistrelles were recorded throughout the survey flying or gliding east or west in front of the building. A serotine was recorded flying east over the building at 20:54.

B1	3	 **The 32 soprano pipistrelle emergences noted by surveyor 2 were recorded by IR 2.** Common and soprano pipistrelle passes were also recorded flying back and forth in front of the building throughout the survey. A serotine was recorded flying east over the building at 20:54.

B1	4	 A serotine was recorded flying east to west over B1 at 20:54.
Other observations		

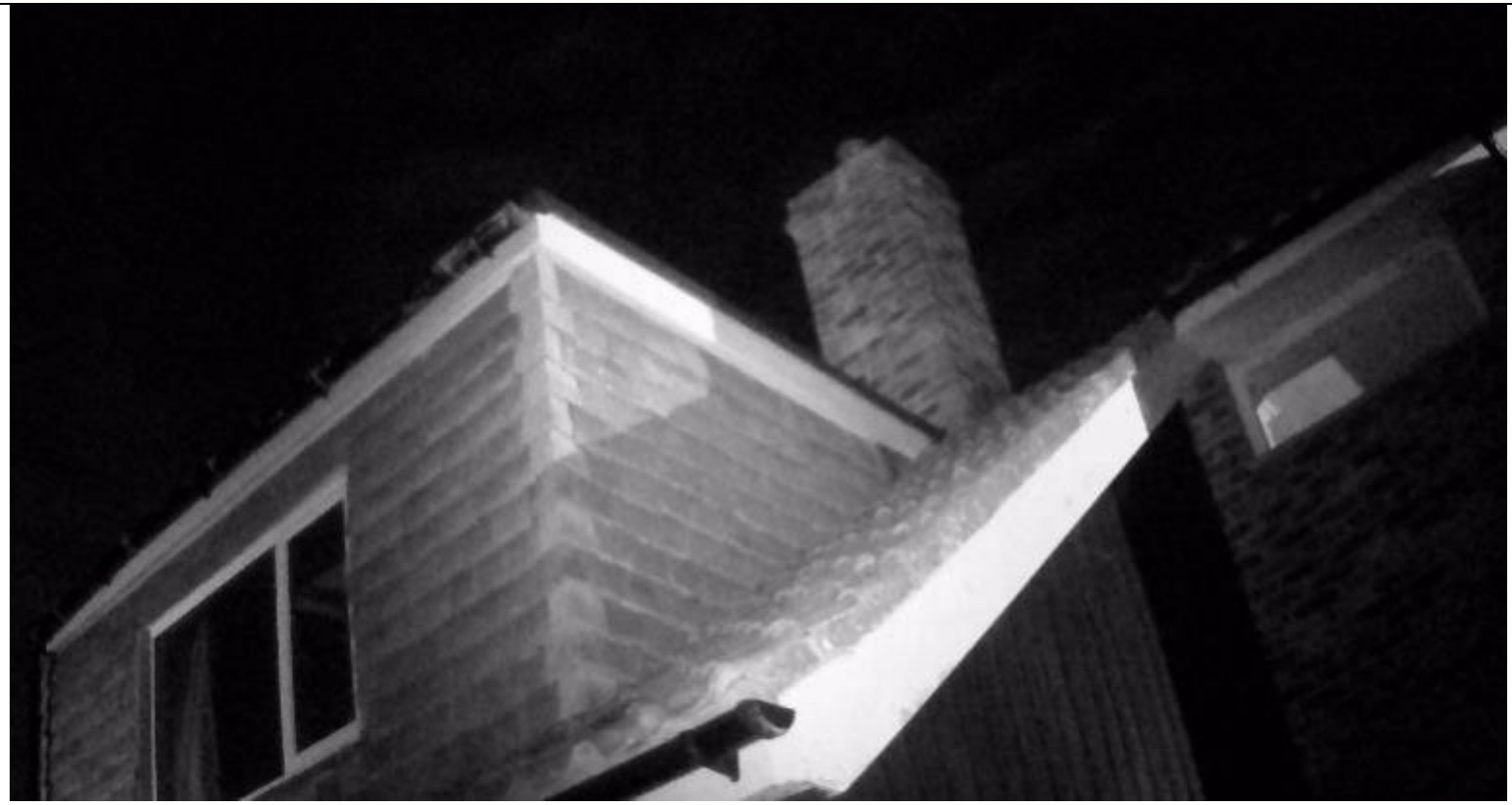
Table 3: Survey results (third visit)

<table>
<tr><td colspan="2">Date</td><td colspan="2">30/08/22</td></tr>
<tr><td colspan="2">Building inspection prior to survey</td><td colspan="2">No external evidence of bats was found at ground level prior to the survey. No internal inspection was conducted.</td></tr>
<tr><td colspan="2">Start and end times</td><td colspan="2">19:20 – 22:25
Sunset: 19:54</td></tr>
<tr><td colspan="2">Weather conditions</td><td>Start:
Temp: 14.4°C
Relative Humidity: 81%
Cloud Cover: 3%
Wind: 1mph
Rain: None
Moon illuminance: 10%</td><td>End:
Temp: 13°C
Relative Humidity: 93%
Cloud Cover: 10%
Wind: 0mph
Rain: None
Moon illuminance: 10%</td></tr>
<tr><td colspan="2">Surveyor (position)
As shown in Appendix 3</td><td colspan="2">Joseph Crook (7 years bat survey experience) - Position 1 – observing the southern and eastern elevations and roof structures of B1
Jonathan Kewell (10 years bat survey experience) leading for Natalie Evans, (Natural England Bat Licence Number: 2018-37888-CLS-CLS).
Position 2 – observing the southern, eastern and western elevations and roof structures of B1
Ryan Tessier (8 years bat survey experience) - Position 3 – observing the northern and western elevations and roof structures of B1</td></tr>
<tr><td colspan="2">IR position
As shown in Appendix 3</td><td colspan="2">Position 1 - observing the southern and eastern elevations and roof structures of B1
Position 2 – observing the southern, eastern and western elevations and roof structures of B1
Position 3 – observing the northern and western elevations and roof structures of B1
Position 4 – observing the southern, eastern and western elevations and roof structures of B1</td></tr>
<tr><td>Building reference</td><td>Surveyor position</td><td colspan="2">Notes/observations:</td></tr>
<tr><td>B1</td><td>1</td><td colspan="2">A common pipistrelle emerged from the top-left corner of the right-hand window on the eastern elevation (shown below) at 20:37, flying clockwise around B1.</td></tr>
</table>

		 Most of the soprano pipistrelles emergences detailed by surveyor 2 were also observed by surveyor 1. A soprano pipistrelle was observed feeding over the driveway at 20:32. A common pipistrelle flew up and down the southern hedge boundary between 20:23 and 20:26, and again between 20:54 and 21:01. A serotine was observed feeding over the hedge at the eastern property boundary at 20:23 and again at 20:38. A noctule was seen flying east over the north of the property at 21:05.
B1	2	**Between 19:56 and 20:12, 11 soprano pipistrelles emerged from the top of the south-eastern corner of the dormer in the southern elevation of B1 (shown below).**

		 The emerging soprano pipistrelles all flew west and fed over the pond, however by 20:17 they had all left the pond area. Two common pipistrelles flew clockwise around the building from the direction of surveyor 1 at 20:15. A common pipistrelle flew up and down the southern hedge boundary between 20:23 and 20:26, and again between 20:54 and 21:01.
B1	3	At 20:21 and 20:35 a common pipistrelle flew west along the northern border of the property and continued over surveyor 3. Distant common pipistrelle passes were heard but not seen between 20:15 and 20:46. A noctule was seen flying east over the north of the property at 21:05.
Building reference	**IR position**	**Notes/observations:**

B1	1	 **The common pipistrelle emergence from above the window at 20:37 as detailed by surveyor 1 was recorded on IR 1. The 11 soprano pipistrelle emergences from the south-facing dormer were also recorded.** Common pipistrelle passes west along the northern elevation of the roof were recorded at 20:21 and 20:35.

B1	2	 **The 11 soprano pipistrelle emergences from the south-facing dormer detailed by surveyor 2 were also recorded by IR 2.**

B1	3	 At 20:21 and 20:35 a common pipistrelle was recorded flying west along the northern border of the property, towards and over IR 3.

B1	4	 **The 11 soprano pipistrelle emergences from the south-west corner of the dormer were also recorded by IR 4.** Common pipistrelle passes from right to left were recorded at 20:54 and 21:01.
Other observations		

4.0 Conclusions, Impacts and Recommendations

Taking the field survey results into account, Table 4 presents an evaluation of the value of the buildings for roosting bats in relation to the proposed development which will comprise Single storey side extension, new rear terrace, re-cladding, alterations to roof, enlarging dormer, replace roof tiles with slates, removal of the chimney, PV panels on roof, new single garage and air source heat pump in front garden and new shed in the rear garden..

Table 4: Evaluation of buildings on site for roosting bats

Building	Survey Results Summary	Impact Assessment	Recommendations	Biodiversity Enhancement Opportunities[1]
B1	Roost 1: Species: soprano pipistrelle Peak count: 39 Roost type: maternity roost Roost location: eastern window lintel (first survey), southern dormer (second survey) Access points: gap above window and hanging tiles Numbers are likely to be higher in June/July. This roost is considered to have moderate conservation value, in line with the Bat Mitigation Guidelines (English Nature, 2004). Roost 2: Species: common pipistrelle Peak count: 1 Roost type: day roost	The proposed works will destroy all bat roosts when cladding and tiles are removed. Bat could be killed or inured during works. The proposed development will include the use of lighting which could spill on to bat roosting, foraging or commuting habitat and deter bats from using these areas.	An EPSL application to Natural England will be required to legally permit the proposed works. The EPSL application requires that surveys have been undertaken within the most recent active bat season (optimal May to August, suboptimal September). Planning permission must have been granted and all relevant wildlife-related conditions have been discharged prior to submission, where possible to do so. The survey effort should include at least one survey between May and June when the detection rate of bat roosts is highest. A Material Changes Check will be required within three months of the EPSL submission, if no survey work has been undertaken within that period. The EPSL will detail any mitigation and compensation measures that will be required for the proposed development to comply with the standing advice and will be designed to reduce any impacts to an acceptably low level so as to maintain (or enhance) the Favourable Conservation Status (FCS) of the local bat population. The EPSL will include the following measures: • Timing of works to avoid the maternity season (May to September) • Where possible, destructive works should be timed to take place in the 'shoulder' seasons October-November or March-April.	At least one additional bat box in additional to those required under EPSL will be installed on site.

[1] The Local Planning Authority has a duty to ask for enhancements under the NPPF (2021).

	Roost location: eastern window lintel Access points: gap above window This roost is considered to have low conservation value, in line with the Bat Mitigation Guidelines (English Nature, 2004). The pond to the south-west of B1 is a feeding ground for common and soprano pipistrelles, brown long-eared bats, myotis and serotines. The southern boundary hedge is a commuting route for common and soprano pipistrelles as well as myotis species.		• The installation of 2 bat boxes at the site (one bat box per bat species) prior to works commencing to form a receptor site for any bats found during the works. These boxes may be installed on buildings or trees or can be pole mounted but must be in an undisturbed location and will need to be maintained in this location post-development. Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light. • The provision of a toolbox talk to contractors, by the Named Ecologist or an Accredited Agent, to inform them of the presence of bat roosts. • A pre-commencement inspection of any roost features by the Named Ecologist or an Accredited Agent using a torch and an endoscope (this may be via ladders, scaffolding or a mobile elevated platform). • The removal of all hanging tiles and cladding by hand under the supervision of the Named Ecologist or an Accredited Agent (where it is not possible conclude absence of bats during the pre-commencement inspection). • Avoiding the use of unnecessary lighting, particularly at night, or implementing a low impact lighting strategy to avoid illumination of retained or newly created roosts or roost features. • Avoiding excessive noise or vibration disturbance e.g. from power tools or radios, within close proximity of retained or newly created roosts or roost features. • Roost replacement features will be built into the new tiles and cladding in the form of integrated boxes and bat adapted tiles. • Post development monitoring will be required in years 2 and 4 post development. This will involve a dusk emergence survey to cover all replaced roosts. You must include a certificate that proves the roofing membrane has passed a ‘snagging propensity test’ if you’re using a non-bitumen coated roofing membrane. A snagging propensity test checks that the membrane can stand the repeated snagging actions of roosting bats. To pass, a membrane must show no change in the average	

			number of loops per cm2 as rotations are increased from 0 to 1000. You do not need a certificate for bitumen 1F felt that has a non-woven, short fibre construction. Should timber treatment be required this should follow guidance set out at the below link: https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts The EPSL will only include the bat species, numbers and roost types listed above. If bats are found during periods of adverse weather conditions, these must be left undisturbed until weather conditions become more favourable to move bats to the receptor bat box. EPSLs do not allow for the disturbance of hibernating bats. Therefore, if any bats are found during the hibernation period or if any unexpected bat species or roost types are identified works must cease and advice must be sought from the Named Ecologist regarding the possible requirement for timing restrictions for works, the completion of further bat surveys or a modification to the EPSL. A low impact lighting strategy will be adopted for the site during and post-development, which will include the following measures: • Light spill on to the pond or the southern hedge-line should be avoided. • Use narrow spectrum light sources to lower the range of species affected by lighting. • Use light sources that emit minimal ultra-violet light. • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature <4,200 kelvin. • Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal. • Light spill will be reduced via the use of low-level lighting used in conjunction with hoods, cowls, louvers and shields.	

			Lights will also be directional to ensure that light is directed to the intended areas only. • External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on. • Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.	
Nesting birds	No nesting birds were observed within B1. A large number of swifts were observed above the property before each survey.	Small birds such as house sparrows, wrens and blue tits could nest in the external structures of the building.	If works are undertaken between March and August, a nesting bird check will be carried out by a suitably qualified ecologist prior to the start of work. Any active nests must be left in situ until the young have fledged.	A group of house sparrow boxes and swift boxes should be placed under the eaves of the dwelling. The boxes should be grouped for at least 3 nesting pairs and should be away from direct sunlight.

5.0 Bibliography

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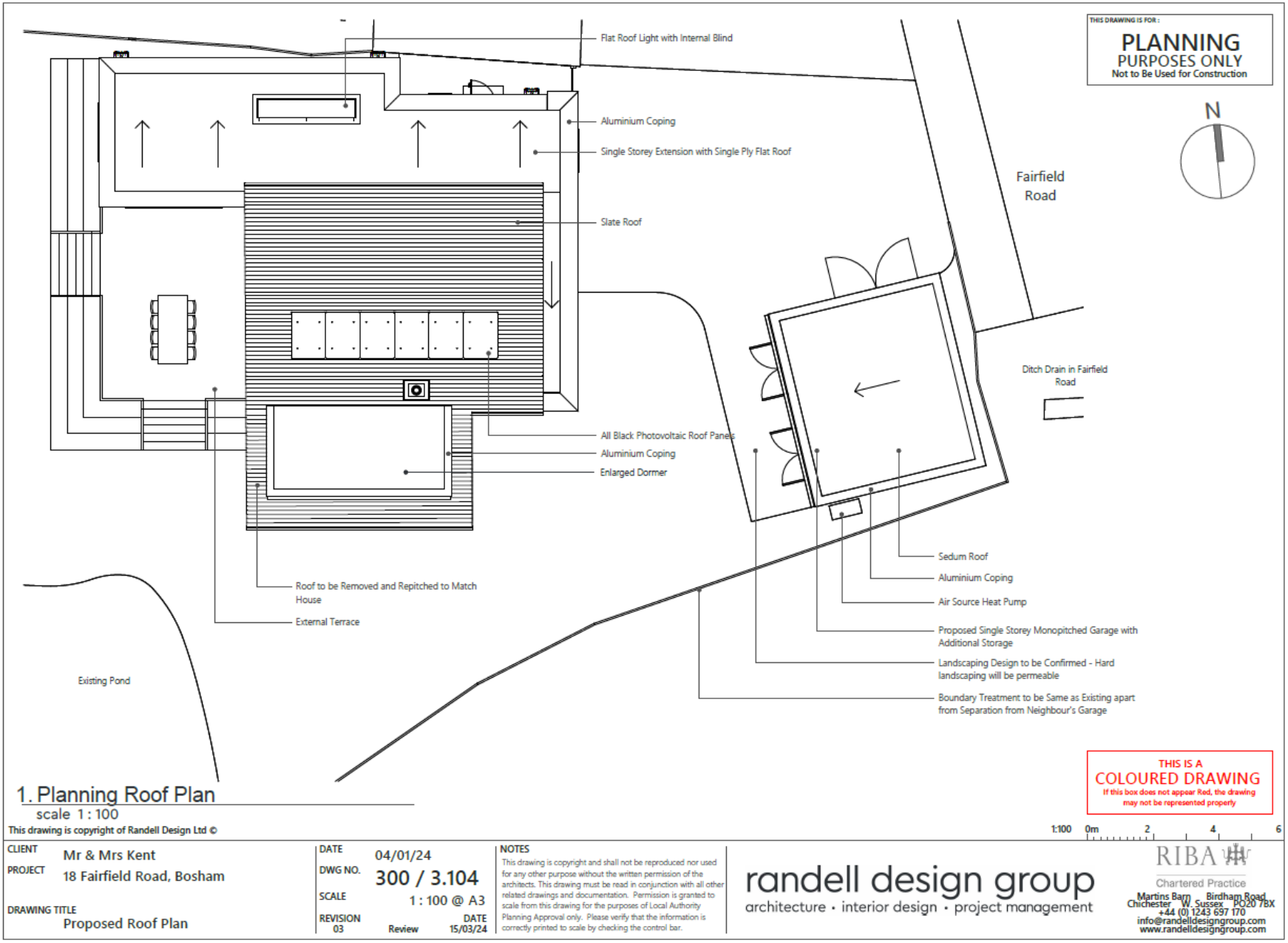
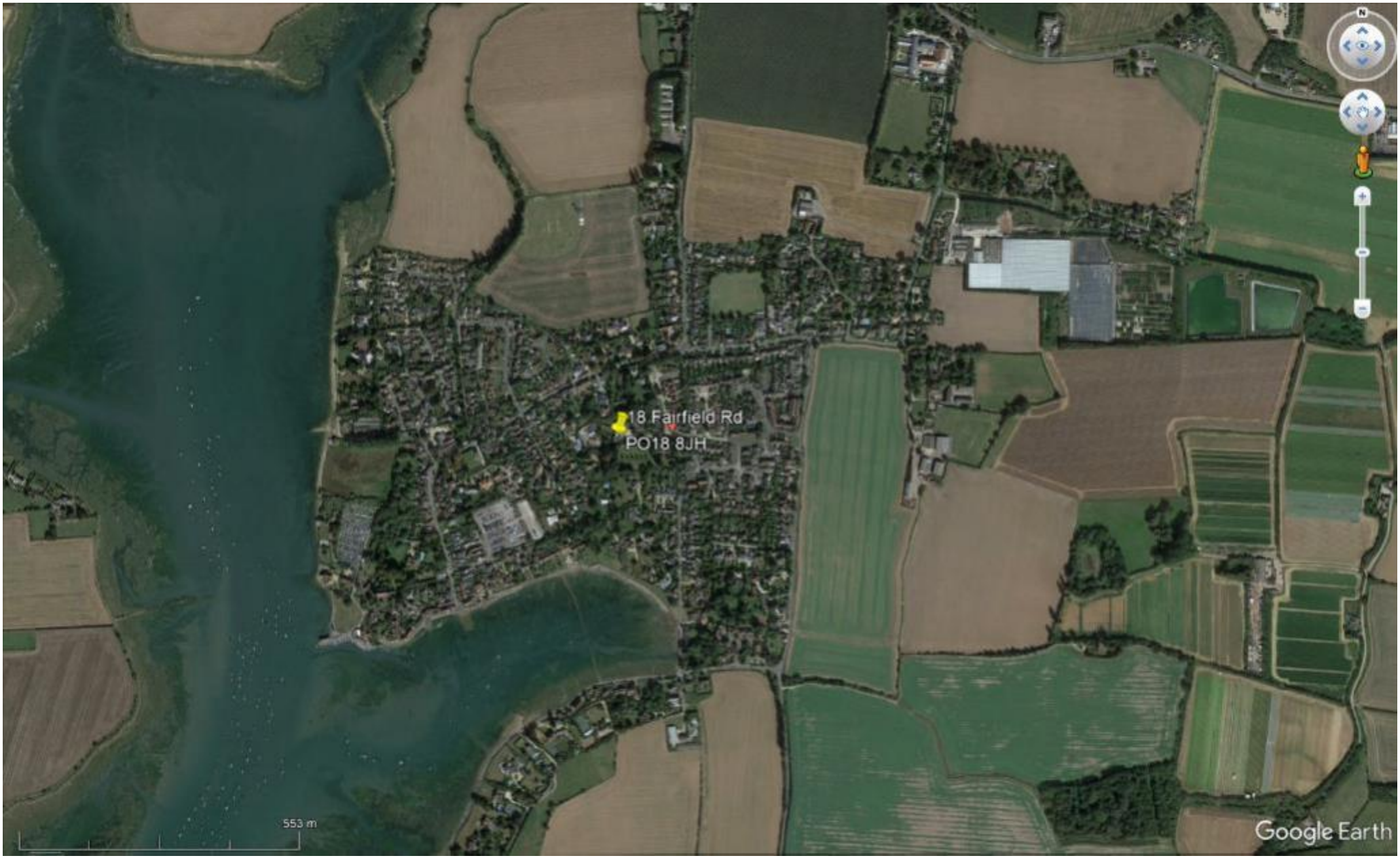
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.
- Preliminary Roost Assessment (20/07/2023), Arbtech Consulting Ltd
- Wray, S., Wells, D., Long, E., Mitchell-Jones, T (2010) Valuing Bats in Ecological Impact Assessment. IEEM In-Practice. Number 70 (December 2010). Pp. 23-25.

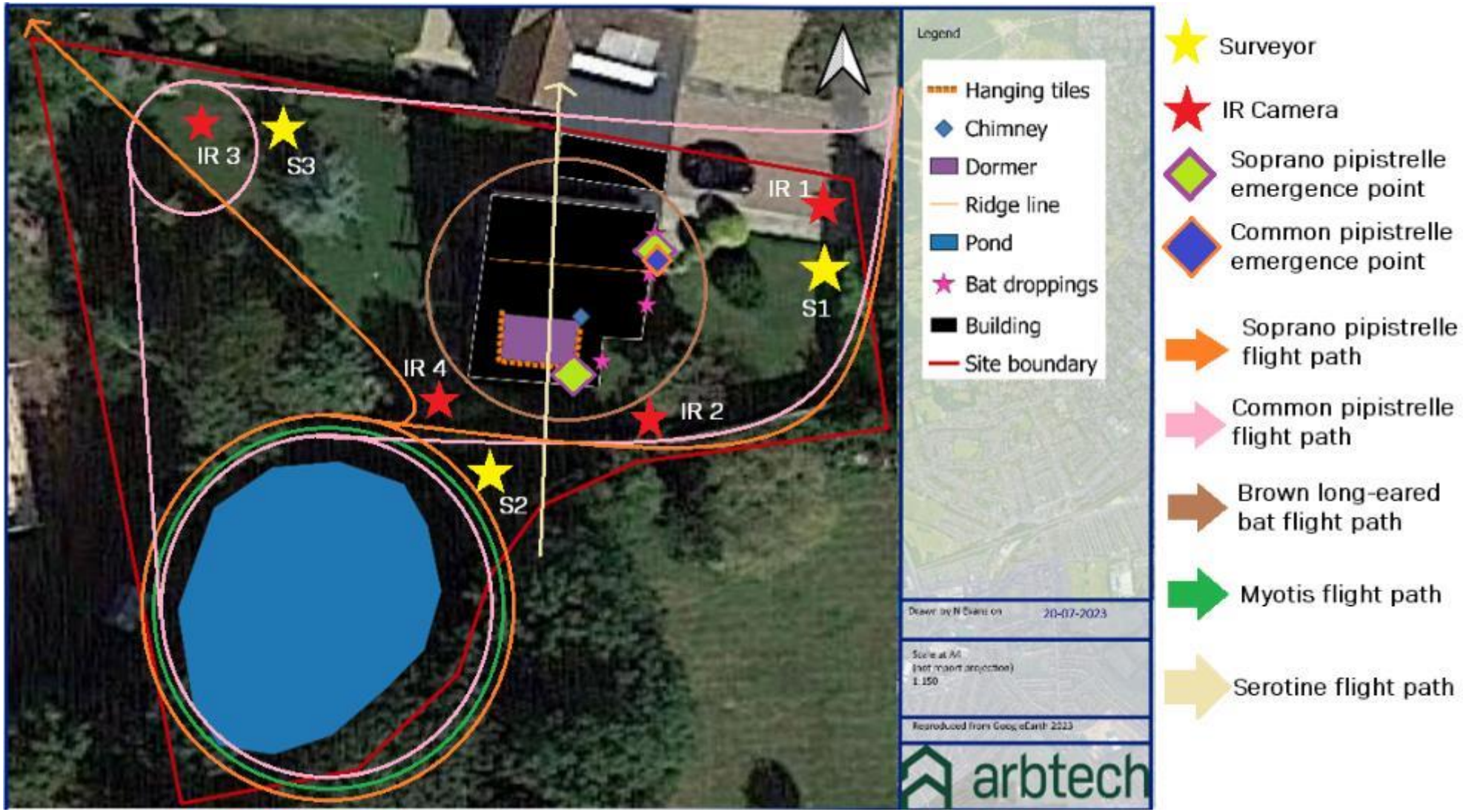
Appendix 1: Proposed Development Plan



Appendix 2: Site Location Plan



Appendix 3: BERS Plan



Appendix 4: Legislation and Planning Policy Related to Bats

LEGAL PROTECTION

All species of bat are fully protected under ***The Conservation of Habitats and Species Regulations 2017*** (as amended) through their inclusion on Schedule 2.

Regulation 43: Protection of certain wild animals - offences

(1) A person is guilty of an offence if they:

(a) Deliberately captures, injures or kills any wild animal of a European protected species,

(b) Deliberately disturbs wild animals of any such species,

(c) Deliberately takes or destroys the eggs of such an animal, or

(d) Damages or destroys a breeding site or resting place of such an animal,

(2) For the purposes of paragraph (1) (b), disturbance of animals includes in particular any disturbance which is likely—

(a) To impair their ability:

(i) To survive, to breed or reproduce, or to rear or nurture their young; or

(ii) In the case of animals of a hibernating or migratory species, to hibernate or migrate; or

(b) To affect significantly the local distribution or abundance of the species to which they belong.

Bats are also protected under the ***Wildlife and Countryside Act 1981*** (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale

NATIONAL PLANNING POLICY

National Planning Policy Framework 2021

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; measurable gains in biodiversity in and around developments are incorporated; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity'. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) issued by Natural England will be required for works likely to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficiency/success to be monitored. The legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost (Garland & Markham, 2008).

There are 17 species of bat breeding in England and Natural England issues licences under Regulation 55 of the Habitats Regulations to allow you to work within the law. Licences are issued for specific purposes stated in the Regulations, if the following three tests are met:

- The purpose of the work meets one of those listed in the Habitats Regulations (see below);
- That there is no satisfactory alternative;
- That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range

The Habitats Regulations permits licences to be issued for a specific set of purposes including:

- include preserving public health or public safety or other imperative reasons of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
- scientific and educational purposes;

- ringing or marking; and,
- conserving wild animals.

Development works fall under the first purpose and Natural England issues bat mitigation licences for developments.

EUROPEAN PROTECTED SPECIES POLICIES

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.