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Ecological Consultants
Environmental and Rural Chartered Surveyors

BAT SURVEY AT

Holden Clough Nursery,
Bolton-by-Bowland

Green at Heart BEN GOLD

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Accuracy of report

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, bats are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and or in their interaction with bat species. If bats are found during a work programme and continuing the work programme could result in their disturbance, injury or death either directly or indirectly an offence may be committed.

These species may only be disturbed, injured or killed under licence.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

This report has been printed on recycled paper as part of our commitment to achieving both the ISO 9001 Quality Assurance and ISO 14001 Environmental Assurance standards. Envirotech has been awarded the gold standard by the Cumbria Business Environmental Network for its Environmental management systems.

Signed

Andrew Gardner BSc (Hons), MSc, MRICS, Dip NDEA
Director

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1. EXECUTIVE SUMMARY

It is understood that works will be undertaken to upgrade the buildings at Holden Clough Nursery, Holden, Bolton-by-Bowland.

It is intended that a single-storey wrap-around extension is added to the Tearoom, and solar panels may be affixed to the Tearoom roof.

The Bungalow will be demolished and rebuilt.

A daytime inspection was undertaken on the 31st May 2018 and again on the 11th October 2022. This involved a close inspection of the buildings for signs of use by bats both internally and externally.

A desk study and data search were also undertaken to ensure the reasonable probable use of the site by bats could be determined.

The habitat around the site offers a moderate-high potential for foraging, consisting of farmland, hedgerows and the adjacent Holden Beck with associated trees. There is good connectivity between the site and higher quality foraging areas.

The Bungalow has high potential for use by bats. Evidence of bats was found in the bungalow. Roosts in the bungalow will be lost during demolition.

The Tearoom has very low potential for use by bats in the areas affected by the proposals. No indications of use of the tearoom by bats in the areas affected by the proposals were found during the survey.

On the basis of the survey work carried out, under guidance provided in respect of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and considering the plans for the site, it is considered that a Protected Species Mitigation (PSML) Licence for bats will not be required for the Tearoom.

A PSML may be required for the Bungalow prior to works being carried out.

A mitigation strategy has been prepared and should be followed in order to ensure that the welfare of the local bat population is maintained during, and following the works.

2. INTRODUCTION

2.1 Site Description

The site lies in a rural location in the hamlet of Holden, approximately 1km west of Bolton-by-Bowland. The surveyed buildings comprise:

1. Bungalow - stone-faced and wood-panelled building under a concrete interlocking tile roof
2. Tearoom - single storey stone built building under a slate roof

There is fragmented woodland in the local area and Holden Beck runs past the eastern boundary. The site is in a sheltered position at SD77349 49535, Figure 1 and 2.

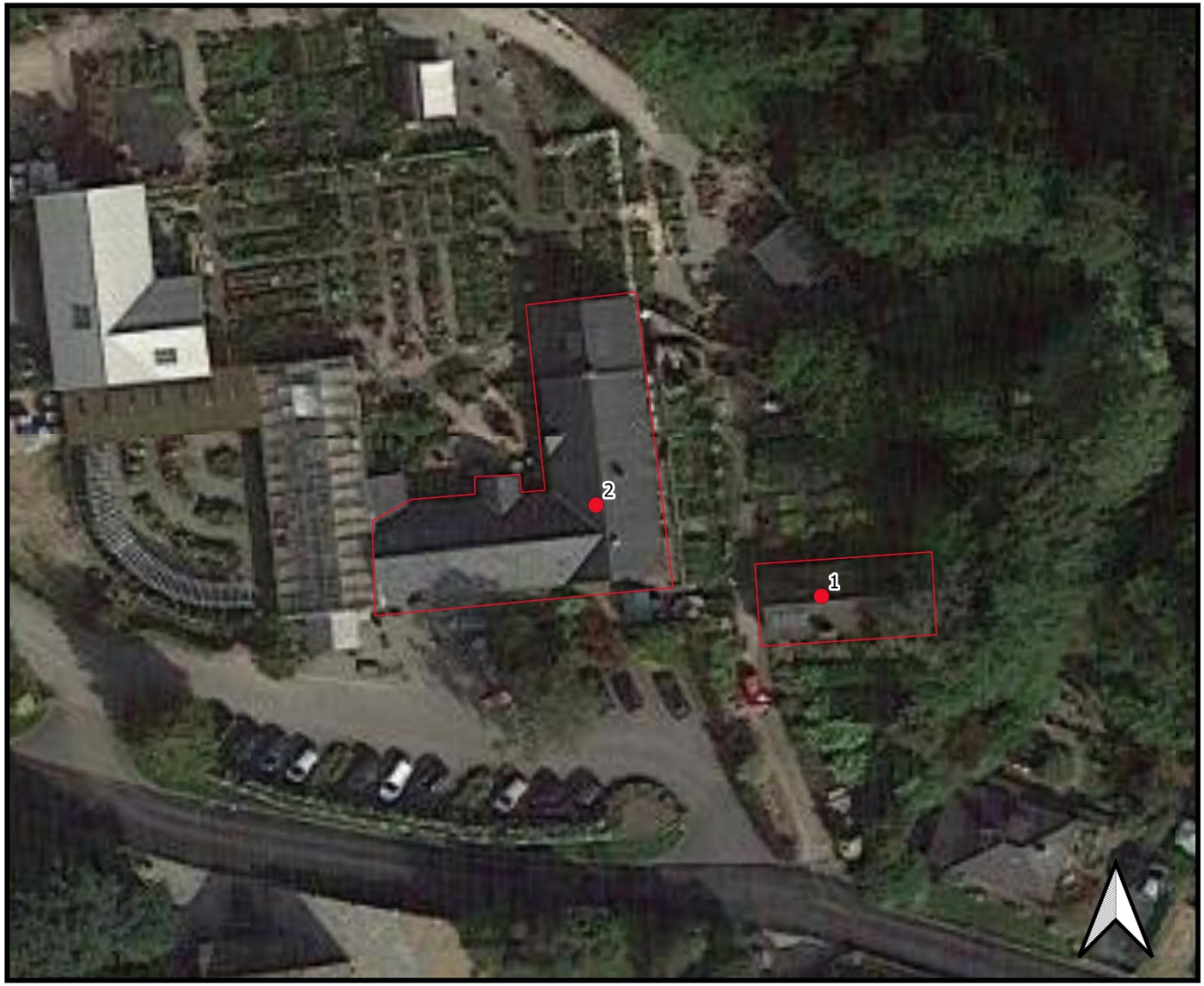

Figure 2

Site boundary

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2.2 Proposed Works

It is proposed that the Bungalow, Building 1, is demolished.

It is proposed that the Tearoom, Building 2, is extended at ground level, and solar panels may be affixed to the roof. There will be significant internal and external alteration to the areas of the buildings affected.

The timing of work is unknown.

2.3 Aims of Study

To ensure that the proposed development does not affect any bat species which are listed under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and or the Wildlife and Countryside Act (1981) (as amended) the survey will:-

- ⇒ Identify past and/or current use of the site by bat species.
- ⇒ Assess the likely impact of the proposed development on these species.
- ⇒ Provide an outline mitigation/compensation scheme (if required) for bat species affected by the development.

3. METHODOLOGY

3.1 Bats

3.1.1 Rationale of Survey

The methods used **comply with those described in** Hundt (2012) and Collins, J (ed) (2016). The following extracts from Collins, J (ed) (2016) are used to determine the appropriate level of survey in accordance with the guidelines.

Key point 1: Guidelines should be interpreted using professional expertise.

> *"The guidelines do not aim to either override or replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. However, in this scenario an ecologist should provide documentary evidence of (a) their expertise in making this judgement and (b) the ecological rationale behind the judgement.*
>
> *Equally, it would be inappropriate for someone with no knowledge or experience to read these guidelines and expect to be able to design, carry out, interpret the results of and report on professional surveys as a result, simply following the guidelines without the ability to apply any professional judgement."* Section 1.1.3

Key point 2: Guidelines are descriptive rather than prescriptive and must be adapted on a case by case basis.

> *"The guidelines should be interpreted and adapted on a case-by case basis according o site-specific factors and the professional judgement of an experienced ecologist. Where examples are used in the guidelines, they are descriptive rather than prescriptive."* Section 1.1.3

Key point 3: Surveys should be undertaken where it is reasonably likely bats are present and may be affected by the proposal. Where bats are not likely to be present and or will not be affected by the proposal, survey could but need not be undertaken.

> *"It is reasonable to request surveys where proposed activities are likely to negatively impact bats and their habitats. However, surveys should always be tailored to the predicted, specific impacts of the proposed activities (see Section 2.2.2). Excessive, speculative surveys are expensive and cause reputational damage to the ecological profession."* Section 2.1

Key point 4: Surveys should be proportionate to predicated impacts.

> *"When planning surveys it is important to take a proportionate approach. The type of survey (or suite of surveys) undertaken and the amount of effort expended should be proportionate to the predicted impacts of the proposed activities on bats. Clause 4.1.2 of BS42020 (BSI, 2013) states that 'professionals should take a proportionate approach to ensure that the provision of information with the (planning) application is appropriate to the environmental risk associated with the development and its location"* Section 2.2.5

3.1.2 Desk Study

"The aim of a desk study for bats is to collate and review existing information about a site and its surroundings to inform the design of subsequent bat surveys." Section 4.2.1

"As a minimum, it is recommended that background data searches should be carried out upto 2km from the proposed development boundary." Section 4.2.2

Key point 5: A records search was undertaken of the Envirotech dataset. No additional data searches were considered necessary at this site as the bat species likely to be found in the local area could be adequately determined from the records searched.

"The desk study records provide contextual information for the survey design stage as well as the evaluation of the survey results. They should be interpreted to identify:

- *If proposed activities are likely to impact on a SAC or the qualifying feature of a SAC (this may trigger the need for a HRA);*
- *If the proposed activities are likely to impact on other designated sites and thus require consultation with relevant bodies;*
- *Any species (or genera) confirmed/thought to be present;*
- *Any bat roosts that will be impacted (on or off-site);*
- *If it is likely that the CSZs of bats from roosts off-site will be impacted (see Section 3.7);*
- *If there are any rare species in the area that may require species-specific survey methodologies."* Section 4.2.3

Key point 6: Likely bat roosting and feeding sites on and adjacent to the site were identified from aerial photography and the use of Google Street View for ground level analysis. This allows us to identify habitat connectivity and potential foraging areas at a landscape level. We are also able to relate the results of the records search against habitat types and the species of bat which could and or are recorded in the local area. Identification of bat species which may occur locally allows for additional field based surveys to be correctly targeted.

3.1.3 Field Survey

Key Point 7: To ground truth the desktop data (Key point 5) a field assessment of habitat at and adjacent to the site was made. This allows us to cross check our interpretation of aerial photography with actual habitat on the ground. There is occasionally significant change between landscape detailed on aerial photographs and habitat on the ground. Buildings, hedgerows and roads may be built or removed. For example occasionally woodland is felled or has been replanted.

"A preliminary ecological appraisal for bats is a walkover of the proposed development site to observe, assess and record any habitats suitable for bats to roost, commute and forage both on site and in the surrounding area (it is important that connectivity within the landscape is also considered at this stage). The aim is to determine the suitability of a site for bats, to assess whether further bat surveys will be needed and how those surveys should safely be carried out." Section 4.3.1

Key point 8: A thorough inspection of the walls and eaves was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps and cracks in the walls or under the eaves and soffits may provide access to the buildings by bats. Where possible all gaps and cracks

judged to be of a suitable size for bats to take entry to the buildings were inspected either from the ground or the top of a ladder. Where appropriate an endoscope was used to fully inspect these gaps internally.

Key Point 9: A thorough inspection of the roof was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps under the roof coverings, ridge lines and flashing may provide suitable roost sites for bats. All gaps and cracks judged to be of a suitable size for bats to take entry to the buildings were inspected either from the ground or the top of a ladder. Using short focus high quality binoculars and a torch to illuminate any gaps underneath the roof coverings it is often possible to see residual evidence of bats such as droppings, scratch, grease and urine staining, lichen build-up from increase nutrient levels or bats themselves.

Key Point 10: A thorough inspection of the interior and exterior of the buildings to look for signs of bats such as grease or scratch marks, bat droppings and feeding detritus was made. Windows and or other items in and around the site were inspected for urine staining.

Key Point 11: A thorough search for detritus associated with bat feeding perches and roosts was undertaken. These roosts are usually in roof voids, under eaves and open buildings.

Key Point 12: Internal voids and rooms were assessed where it was considered bats may be able to take access. Indications of use such as grease and scratch marks, urine staining, droppings, desiccated young bats, dead bats in water tanks and cobweb free areas under the roof and roof supports were all assessed.

> *"The time needed for a preliminary roost assessment will vary according to the complexity of the structure and the number of ecologists deployed. Large structures with multiple roof spaces, multiple human access points and/or abundant voids and crevices will clearly take some time to understand and search thoroughly. Also, structures may contain several different bat roosts of different species each with their own access point and used at different times of the year. This all adds time to the survey."* Section 5.2.7

Key Point 13: It is the considered opinion of the surveyor who undertook this survey that the time taken to undertake the survey was sufficient given the complexity of the buildings, methods used, time of year and species of bat which may be present.

> *"If the structure has been classified as having low suitability for bats (see Table 4.1), an ecologist should make a professional judgement on how to proceed based on all of the evidence available.*
>
> *If sufficient areas (including voids, cracks and crevices) of a structure have been inspected and no evidence found (and is unlikely to have been removed by weather or cleaning or be hidden) then further surveys may not be appropriate.*
>
> *Information (photographs and detailed descriptions) should be presented in the survey report to justify this conclusion and the likelihood of bats being present at other times of the year estimated. If there is a reasonable likelihood that bat roosts could be present, and particularly if there are areas that are inaccessible for survey, then further surveys may be needed and these should be proportionate to the circumstances (see Section 2.2.5).*

If no suitable habitat for bats is found, then further surveys are not necessary. In this scenario, it is necessary to document how this decision has been reached; photographs and detailed descriptions should be made available as evidence of a robust survey and assessment." Section 5.2.9

Key Point 14: The suitability of a sites potential for roosting is categorised by BCT Collins, J (ed) (2016) as Negligible, Low, Moderate and High and then suggests a level of survey effort required to be confident in the absence of bats. We consider this range to be too course, there being a transition between each level of suitability which is not reflected in the guidelines. We have a modified schedule of suitability using a risk level between 0 and 7. See Key points 1, 2, 3, 4 and 13 which justify this approach.

Suitability Collins (2016)	Description Roosting habitats	Risk Level	Survey level
	Modified from Collins (2016)		
Negligible	No features on site which could be used by roosting bats.	0	No additional survey required
	Negligible habitat features on site likely to be used by roosting bats.	1	
	Features on site could only be used by bats occasionally, habitual use in or between years is unlikely	2	Surveyor to make judgement as to if additional surveys likely to provide useful information about the site. RAM's and provision of new roosting provision to be recommended
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically but no evidence of use found, could provide roost sites which are used in or between years.	3	
	One or more potential roost sites. Potential for habitual use in or between years. Unlikely to contribute to long term favourable conservation status of the species.	4	Single survey (dusk or dawn) at appropriate time of year May to August. Roosts are often transitional, surveys early and late in season may be appropriate (April and September)
	Potential for habitual use in or between years, roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). May be used for transitional or day roost sites by common bat species. Function likely to support favorable conservation status of bats locally.	5	Single survey (dusk or dawn) between May and August. Roosts are often transitional, surveys early and late in season may be appropriate. Consider additional survey in transitional period April and September
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	6	Two surveys (dusk or dawn) between May and August. Consider additional survey in transitional period April and September
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	7	Three surveys (at least one dawn) between May and August. Consider additional survey in transitional period April and September

Table 1 *Risk and need for additional survey following preliminary appraisal for bats.*

3.1.4 Timing

A table showing the timing of the survey in relation to the bat year is shown on Figure 3.

This site was assessed most recently at the following period in the bat year. Some roost types can be clearly identified when not in use or can be inferred from habitat type/residual evidence.

Month of Year		Jan		Feb		Mar		Apr		May		June		July		Aug		Sep		Oct		Nov		Dec	
Survey timing at this site =		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
		Hibernation; activity in mild weather						Becoming more active		Maternity sites. Babies born in late-May/June, independent by July-August						Mating & swarming sites						Hibernation; activity in mild weather			
Activity surveys																									
Inspection of buildings and structures for roosts																									
Tree Survey- Emergence or re-entry surveys																									
Tree Surveys- Observation from the ground																									
Bat detector surveys for dusk/dawn emergence/re-entry for	Transitional Roost																								
	Maternity roosts																								
	Satellite Roost																								
	Mating Roost																								
	Hibernation Roost																								
	Night Roost																								
	Day Roost																								
	Feeding Roost																								
	Swarming																								

Figure 3 *Survey timing in the bat year from Mitchell-Jones (2004).*

Date of visit		11th October 2022	Notes
Weather conditions	Cloud	90%	1
	Wind	Nil	1
	Rain	Nil	1
	Temperature	10°C	1
Surveyors		FW	

Table 2 *Survey dates and times.*

1. Weather conditions were considered acceptable for a survey at the site given the potential for use of the site and species which may be present. Bats are usually active with temperatures above 7 degrees Celsius.

Surveyors

1. (FW) Miss Flora Whitehead BSc (Hons)
   Natural England Bat Class Licence (Level 2)

4. DEFINITIONS

Definitions used in this report are detailed here, in reference to Hundt (2012) and Collins ed. (2016).

Building

A structure with walls and a roof, for example a residential property, block of flats, office block, warehouse, garden house, folly, barn, stable, lime kiln, tower, church, former military pill box, school, hospital or village hall. Some buildings have cellars (underground sites) beneath them.

Built structure

A structure that was made by humans but cannot be described as a building or as an underground site, for example a bridge, wall, monument, statue, free-standing chimney, or derelict building consisting only of walls.

Underground site

A human-made or natural structure that is entirely or partially underground, for example a cave, cellar, subterranean, mine, duct, tunnel, military bunker, well, or ice house.

Roost (breeding site / resting place)

The implementation of the EU Habitats Directive provides general definitions for breeding sites and resting places. For bats the two often overlap, which is why in many cases they are both referred to as roosts. Any interpretation of the terms 'breeding sites', 'resting places' and 'roosts' must take into account the prevailing conditions.

Natural England licensing guidelines (Natural England, 2011) discusses the age of roosts and mitigation requirements as well as the period of time bat roosts are protected when not used. The following is reproduced from this document.

> "Q. The development site ceased to be inhabited last year and it is prone to vandalism. I found evidence of a maternity roost but all current signs suggest that the site is now abandoned by bats. What should I mitigate for?
>
> Wildlife Advisers do not use a tightly defined period within which bat need to have used a structure beyond which it is no longer regarded as a bat roost. A structure can be regarded as a bat roost even if not knowingly occupied by bats for a year or two."
>
> The Method Statements mitigation should reflect compensation for a roost at its highest status within recent years. For example, meagre mitigation for an occasionally used, summer, non-maternity roost that had declined from a maternity roost as a result of human induced change to the roosts conditions e.g. vandalism, may not be acceptable to the Wildlife Adviser.
>
> A demolished structure, irrespective of its previous bat occupancy, clearly, ceases to be a bat roost. An intact structure without bat occupancy perhaps after a few years, and more assuredly after five years, also ceases to be a bat roost". [Emphasis added]

Natural England's guidelines are derived from the European Commission's Article 12 guidance on the definition of resting places for European Protected species.

European Commission (2021), section (54) and (59) state

> The 2021 guidance states of this offence: *"The protection applies all year round if these sites are used on a regular basis" (pg 32). It goes on to state: "Thus, it follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are used only occasionally or are even abandoned but where there is a reasonably high probability that the species concerned will return to these sites and places. If, for example, a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can reuse it in winter"* (pg 33).
>
> The guidance also states that breeding sites and resting places "that are used regularly either within or between years, must be protected even when not occupied" (pg 33 and pg 35).

Resting places: a definition

> Resting places are defined here as the areas essential to sustain an animal or group of animals when they are not active. For species that have a sessile stage, a resting place is defined as the site of attachment. Resting places will include structures created by animals to function as resting places, such as roosts, burrows or hides. Resting places that are used regularly, either within or between years, must be protected even when not occupied.
>
> Resting places essential for survival may include one or more structures and habitat features required for:
>
> 1. thermoregulatory behaviour, e.g. Lacerta agilis (sand lizard);
> 2. resting, sleeping or recuperation, e.g. Nyctalus leisleri (Leisler's bat) roosts;
> 3. hiding, protection or refuge, e.g. Macrothele calpeiana burrows; and
> 4. hibernation, e.g. bat dormitories, and Muscardinus avellanarius (common dormouse) hides.

It is clear that for a site to be classified as a roost when not occupied there must have been past habitual and the probability of future use within at least a two year period as defined as "within or between years".

European Commission (2021) summaries the requirement for the protection of resting sites thus

> "Breeding sites and resting places must be strictly protected because they are crucial to the life cycle of animals and are vital elements of a species' entire habitat. Article 12(1)(d) should therefore be understood as aiming to safeguard the continued ecological functionality of such sites and places, ensuring that they continue to provide all the elements needed by the animal to rest or to breed successfully. The protection applies all year round if these sites are used on a <u>regular basis</u>." [Emphasis added}

As the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 derives and is guided by legislation and guidelines issued by the European Commission, this definition is still valid within the transition period.

Summary

"Breeding site"

Breeding is defined here as mating, giving birth to young (including egg laying) or production of offspring where reproduction is asexual. A breeding site is defined here as the areas needed to mate and to give birth in, and covers also the vicinity of the nest or parturition site, where offspring are dependent on such sites. For some species, a breeding site will also include associated structures needed for territorial definition and defence. For species that reproduce asexually, a breeding site is defined as the area needed to produce offspring. Breeding sites that are used regularly, either within or between years, must be protected even when not occupied.

The breeding site may thus include areas required for:

1. courtship;
2. mating;
3. nest construction or selection of egg laying or parturition site;
4. places used for the purpose of parturition or egg laying or production of offspring where reproduction is asexual;
5. places of egg development and egg hatching;
6. nest or parturition sites when occupied by young dependent on that site; and
7. wider habitats that make reproduction successful, including feeding grounds.

Resting place

Resting places are defined here as the areas essential to sustain an animal or group of animals when they are not active. For species that have a sessile stage, a resting place is defined as the site of attachment. Resting places will include structures created by animals to function as resting places, such as roosts, burrows or hides. Resting places that are used regularly, either within or between years, must be protected even when not occupied.

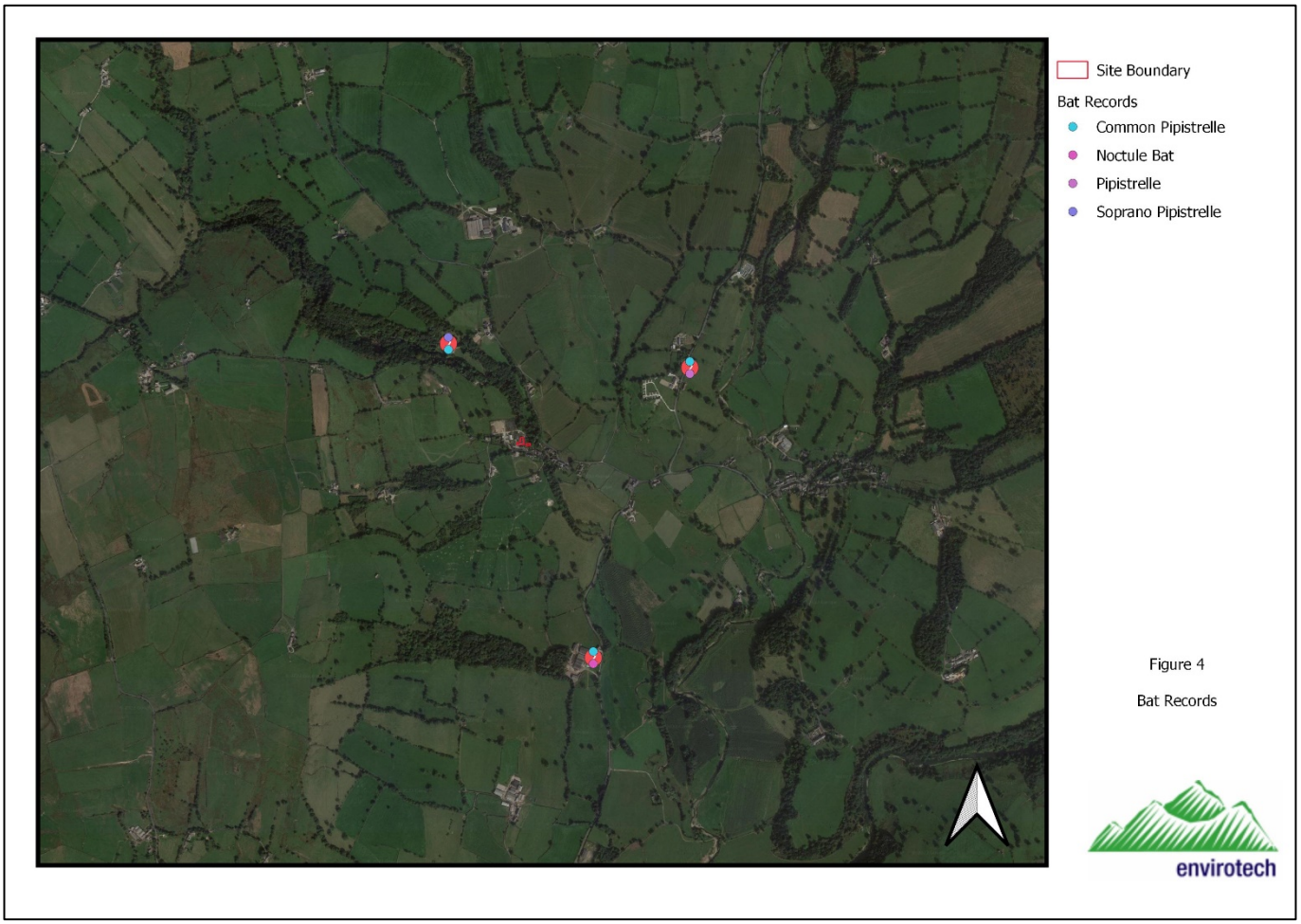
1. Thermoregulatory behaviour
2. Resting, sleeping or recuperation
3. Hiding, protection or refuge
4. Hibernation

5. RESULTS

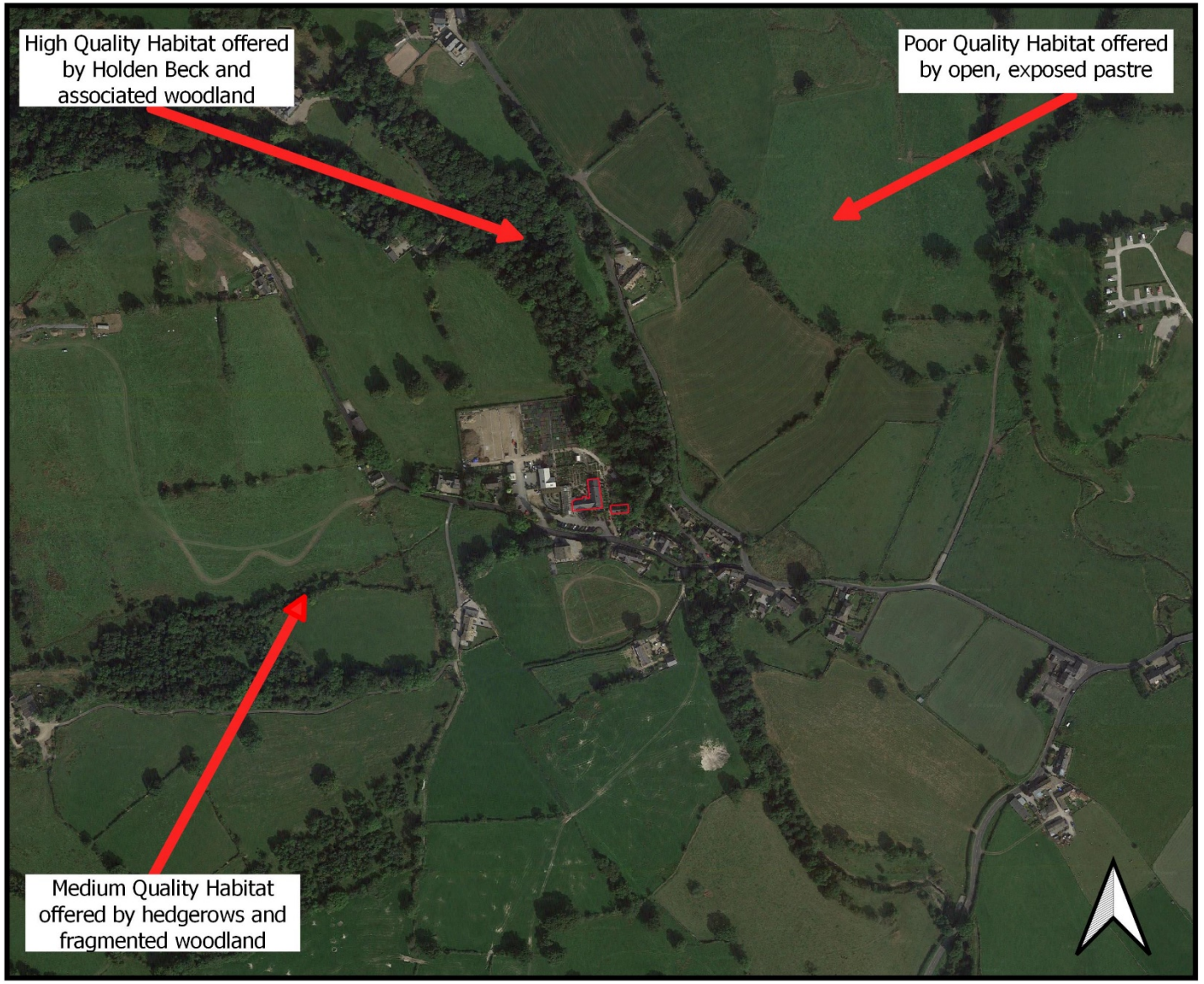
5.1 Desk Study

A search of the Envirotech dataset returned seven records of three bat species within 2km but no records for the site. However, it is known that bats of three species have emerged from both the Bungalow and the Tearoom at the site in 2018.

Records are shown on Figure 4.



The habitat at and adjacent to the site was assessed from satellite imagery this was then ground truthed, Figure 5.



Site Boundary

Figure 5

Habitat Adjacent to Site

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From the pre-existing records, a review of aerial photography, a field assessment of the area adjacent to the site and the experience of the surveyor, bat species which may occur on or adjacent to the site and the rationale for this decision are detailed in Table 3. This assessment does not look at the roosting potential of the site. The assessment of bats which are indicated as potentially occurring on the site or local area is based on the initial largely desk based scoping survey. Additional site specific assessment is provided later in this report. This assessment does however allow for the scope of site survey to be refined.

BAT SPECIES	ROOST PREFERENCE*			NICHE*	SUITABLE HABITAT		RECORDED WITHIN 2KM
	Crevice	Void	Tree		Locally	On site	
Common pipistrelle *Pipistrellus pipistrellus*	✓	×	✓	Generalist	☒	☒	☒
Soprano pipistrelle *Pipistrellus pygmaeus*	✓	×	✓	Riparian/Generalist	☒	☒	☒
Nathusius pipistrelle *Pipistrellus nathusii*	✓	×	✓	Enclosed woodland	☐	☐	☐
Brown long-eared *Plecotus auritus*	×	✓	✓	Enclosed woodland	☒	☐	☐
Whiskered *Myotis mystacinus*	✓	✓	✓	Linear vegetation	☒	☒	☒
Brandt's *Myotis brandtii*	✓	✓	✓	Linear vegetation	☒	☒	☐
Natterer's *Myotis nattereri*	×	✓	✓	Enclosed riparian	☒	☒	☒
Daubenton's *Myotis daubentonii*	✓	×	✓	Open aquatic	☐	☐	☐
Alcathoe's *Myotis alcathoe*	×	×	✓	Enclosed woodland	☐	☐	☐
Noctule *Nyctalus noctula*	×	×	✓	Above woodland/water	☒	☒	☒

Table 3 *Bat species whose geographical range extends to the region in which the site is located. *Typically but not exclusively.*

5.2 Field Survey

5.2.1 Habitat Description

The habitat on and adjacent to the site identified from satellite images was ground truthed. Details of the habitats found on and adjacent to the site are detailed in Figure 5.

It is judged that the most suitable commuting route for bats into and out of the site is the tree-lined Holden Beck running adjacent to the east of the site. The surrounding habitat is considered to have moderate-high foraging potential.

The site is considered to offer moderate foraging opportunities. There are large areas of hard standing, but also considerable vegetative diversity due to cultivation of garden plants. The site is in a sheltered position.

5.2.2 Bat Roost Survey

5.2.2.1 Building 1- Bungalow

A stone-faced and wood panelled building under a tile roof.

5.2.2.2 External walls/ Eaves

The walls of the building are made from natural stone and wood panelling and are in good condition. There are no structural gaps or cracks, the pointing between the stone is in excellent condition. A horizontal gap is however present between the wood panelling near the apex of the west gable.

The timber fascia and soffits around the wall tops of the building are in a poor condition and there are numerous splits and crevices which could allow bat access. The building condition overall has deteriorated since 2018.

Despite the apparent opportunities, no evidence of use of the walls by bats was recorded on the exterior walls of the building. The walls were considered to offer bats **moderate** roosting potential because of the fascia and soffit gaps. Bats emerged from gaps on the south elevation in 2018.

5.2.2.3 Roof

The roof of the building is made from concrete interlocking tiles. There is plentiful moss on the roof, particularly on the east end of each roof pitch, close to the boundary woodland. Moss coverage has increased since 2018. The tiles are all in position and there do not appear to be any suitable gaps or raised slates where bats could gain entry.

The ridgeline is all mortared in place and there are no gaps under ridge tiles.

Where the chimney meets the roof on the south pitch gaps exist under the lead flashing. The full extent of the gaps could be seen from the ground with close focus binoculars and a 1,000,000 candle power torch.

No evidence of use of the roof by bats could be seen, but given the gaps in the flashing it was

considered that the roof could offer a **moderate** potential for use by bats. Bats emerged from beneath flashing in 2018. The flight path to the flashing is now more obscured due to the growth of an adjacent Buddleia bush.

5.2.2.4 Internal walls

The internal walls of the bungalow are unavailable to roosting bats as they form part of the residence.

5.2.2.5 Roof Voids/ Roof structure

The roof is felt lined and this has torn in several places. As in 2018, droppings of mixed age spill through from a tear at the apex towards the west elevation of the building, although the droppings did not appear very fresh in 2022. A sample of these droppings was collected in 2018 and sent away for DNA analysis, the results are appended showing Natterer's *(Myotis nattereri)*. There were occasional scattered bat droppings throughout the remainder of the void.

The timbers are thin and modern and remain in good condition. There are no signs of use by bats on either of bare block gable walls at either end of the building.

Past and/or current use of the roof void/roof structure by bats was confirmed. Bats were known to emerge from the building in 2018. Droppings from the 2022 season were present but not fresh.

5.2.2.6 Summary

To summarise the small building has gaps in the timber wall panelling externally and in the fascia and soffits. Bat droppings were present in the roof void spilling through from a rip in the felt in 2018 and 2022. In 2018 bats were heard between the felt and the roof tiles. DNA testing in 2018 confirmed the presence of Natterer's *(Myotis nattereri),* see appendix. Overall, our risk categorisation would be 6.

5.2.2.7 Building 2- Tearoom

A stone-faced building under a slate roof.

5.2.2.8 External walls/ Eaves

The walls of the building are stone-faced and are in excellent condition. There are no structural gaps or cracks, the pointing between the stone is in excellent condition. The more recent extension to the north is currently lacking stone facing, but walls are sealed blockwork. Netting on the western elevation of the new extension covers recently mortared blockwork.

There are no soffit or eaves boards, very narrow gaps are present behind guttering over the wall tops, but these are cobwebbed with no indications of use by bats.

The walls were considered to be well sealed with **negligible** potential for use by bats.

5.2.2.9 Roof

The roof of the building is made from slate and appeared well sealed, with slates in place and tightly fitted.

Where the chimney meets the roof above the north gable there are very small gaps beneath lead flashing and there are some verge gaps between slates but these are very tight.
In 2018 low numbers of bats emerged from gaps behind lead flashing on the north and west gables.

All ridge tiles are in places and appear to fit tightly and there are no gaps for bats to utilise along the ridgeline.

The roof appeared to offer a **low** potential for use by roosting bats, with conditions similar to 2018. The main roof areas affected by solar panel installation have very low potential for use by roosting bats.

5.2.2.10 Internal walls

The internal walls of the building are unavailable to roosting bats as they form part of the tearoom.

5.2.2.11 Roof Voids/ Roof structure

The roof voids are large but cluttered with complicated roof joists. The roof is lined and with a modern breathable membrane but the space is hot inside. There was no evidence anywhere to suggest any type of use by bats, the void was very clean. It was considered that this roof void offers **negligible** potential for use by bats.

5.2.2.12 Summary

To summarise this large building is in very good condition and well sealed except small gaps under flashing on the gable wall tops around chimneys and some small verge gaps. Bats were confirmed as present roosting at gable apexes in 2018. These areas will be unaffected by the current proposals.

The building offers **low** potential for use by bats on the roof areas affected by solar panels and the risk categorisation for these areas is 3.

The building offers **negligible** potential in the ground-floor areas affected by the proposed works, and the risk categorisation for these areas is 2.

6. CONSTRAINTS

We judge that the survey is insufficient to address the risk to bats in Building 1, given that bats emerged in 2018 and droppings were present in 2022 and the structure is to be demolished.

We judge that the site survey is sufficient to address the risk to bats in Building 2 based on the surveys in 2018, the construction of the buildings and nature of the proposed work. The level of survey effort accords with the recommendations of Collins ed. (2016). The reasonable probable use of the site by bats has been determined.

7. INTERPRETATION

7.1 Presence / absence

Bats were known to have roost sites in Building 1, the Bungalow, in 2018, and evidence of use by bats remains in 2022.

Low numbers of bats were known to have had a roost close to the gable apexes of Building 2, the Tearoom, in 2018. There was no past or current evidence of bats on the areas of the building affected by the current proposals.

7.2 Population size class assessment

From a review of adjacent habitat the maximum number of bats that are likely to use an area within 250m of the site is of the magnitude 10 – 99 (medium

A maximum of seven bats were recorded roosting on site in 2018.

7.3 Site status assessment

We consider the site was used by non-breeding bats for transitional/day roosting in 2018 and that use of the site is likely to be similar in 2022.

Such use will not be affected by the proposed ground-floor works to the Tearoom, or installing solar panels on the main roof areas.

The Bungalow will need further survey to determine current bat roosting status prior to demolition.

8. POTENTIAL IMPACTS

8.1 Bat Roosts

8.1.1 Pre and mid-activity impacts

A worst case scenario will be considered in addressing potential impacts at the site without mitigation.

8.1.1.1 Maternity Roosts

No signs of past maternity or gathering roosts were found at the site during the survey. The potential for a maternity or gathering roost in the buildings is judged to be very low due to the absence of highly suitable roost sites. Evidence of past use of the site by large numbers of bats such as would occur in a maternity or gathering roost, such as staining on the roof or walls, was absent. Evidence of intensive/ regular use such as occurs in such roosts can usually be found at any time of year. **We judge there is no risk to a maternity colony or gathering roost at this site from the proposed work.**

8.1.1.2 Satellite Roosts

We do not consider that satellite roosts will be affected by the proposal.. There was no indication of elevated use of the site such as would occur if this roost type were present. **We judge there is no risk to a satellite roost at this site from the proposed work.**

8.1.1.3 Transitional and day roost sites

For Building 1, the Bungalow, we judge there is high risk of significant disturbance to bats in or loss of or alteration of transitional or day roost sites, given that bats were found roosting in the building in 2018 and similar use is apparent in 2022.

For Building 2, the Tearoom, we judge there is a very low risk of a significant disturbance to bats in or loss of or alteration of transitional or day roost sites. Two transitional/day roosting sites were recorded in the building in 2018. There are currently no plans to directly disturb any of the areas where bats were recorded roosting, and the areas of the building affected by the current proposed works have negligible potential for use by bats. There is an existing elevated level of human activity around the site due to its current use. Construction works are unlikely to increase this level of disturbance.

8.1.1.4 Night Roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for night roosting.

8.1.1.5 Feeding roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for feeding roosts.

8.1.1.6 Lek sites

In our experience lek sites are commonly found in proximity to the main feeding and commuting routes. The primary commuting and feeding area at the site was judged to be the woodland some distance from the site to the north-west. There were no potential lek sites identified in the buildings facing this commuting route which are also close enough to it to be used by male bats for leks. It is therefore unlikely there will be use of the buildings by bats for lekking.

8.1.1.7 Hibernation

There are no areas of rotten wood in the buildings or damp walls which also offer crevices which could be suitable for hibernating *Pipistrelle* spp. bats.

There are no areas of the buildings which are sufficiently damp, cool and darkened which would be ideal for hibernating *Myotis* spp. bats. There is very little evidence and limited potential for hibernation at the site; it is therefore unlikely there will be loss of hibernation sites.

8.1.1.8 Swarming

There is unlikely to be any loss of a swarming site. Swarming sites are generally found at or near hibernation sites. We judge that the site is unlikely to be used by *Myotis* spp. bats and brown long-eared bats which have been known to swarm as there are no hibernation sites for these species in the buildings.

8.1.1.9 Summary

For Building 2, without mitigation, there is considered to be only a low potential for the alteration or loss of occasional, unconfirmed roost sites for bats at the site and this is unlikely to have a significant impact on their local distribution.

For Building1, without mitigation, there is high potential for loss/disturbance of transitional/day roost sites. Further survey is required.

8.1.2 Long term impacts

There is on balance a low risk of long term negative impacts on the favourable conservation status of bats in the local area as a result of the proposed work.

8.1.3 Post activity interference impacts

There is unlikely to be disturbance to roosting bats during the post construction phase of the project. There is already significant disturbance at the site from existing use of the site and surrounds.

8.1.4 Other impacts

It is our opinion that there will be no significant other negative impacts relating to the proposed work which may affect bat species.

8.1.5 Bat Foraging and Commuting Habitat

There is unlikely to be a disruption to any commuting routes at the site. The site does not lie on or near to a high quality commuting route.

There is unlikely to be a disturbance to feeding bats during and after the construction phase of the project. It is judged that the foraging areas near the site will be unaffected by the proposed work.

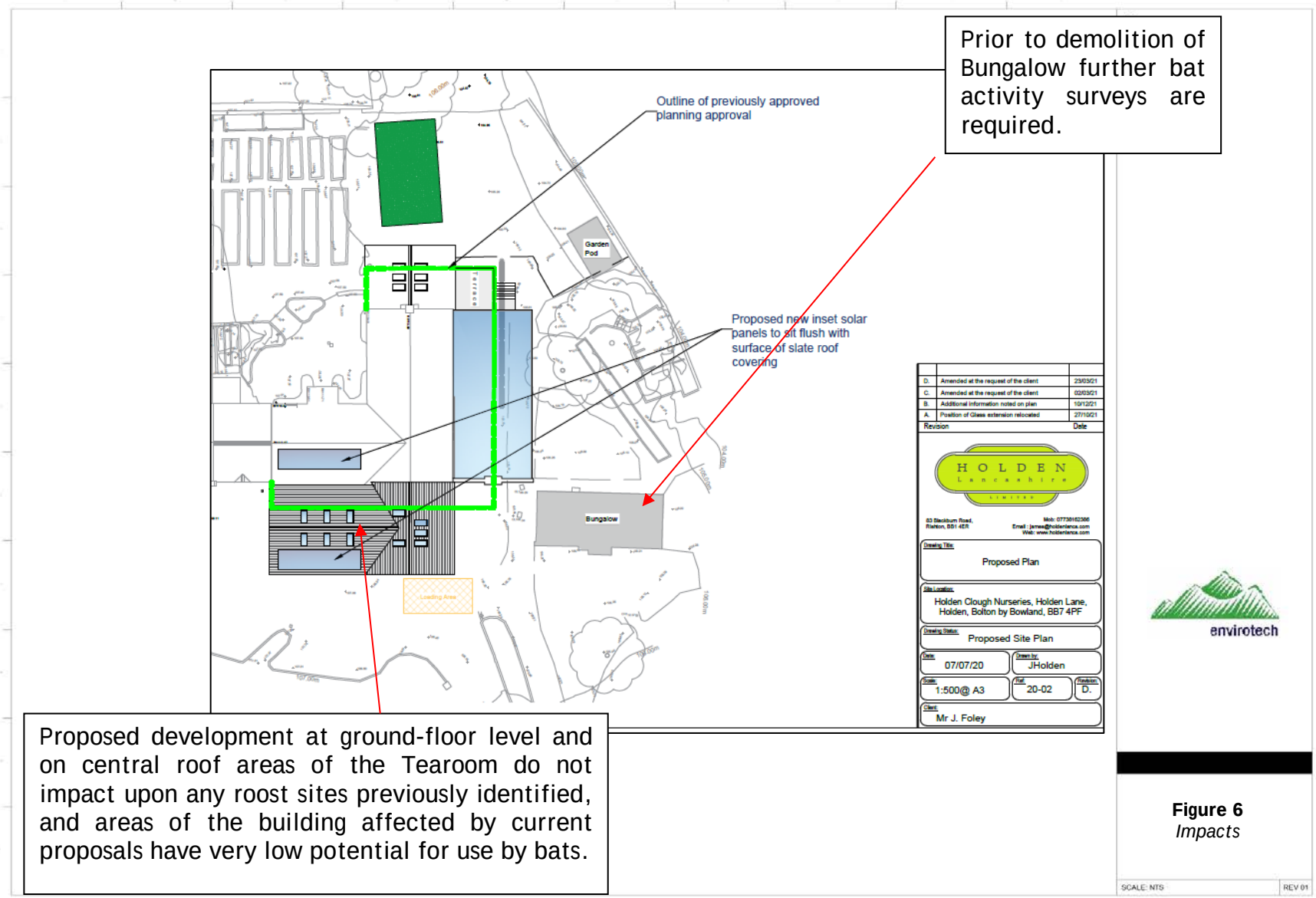

Figure 6
Impacts

9. RECOMMENDATIONS AND MITIGATION

9.1 Further Survey

Prior to demolition of Building 1, the Bungalow, two bat activity surveys are required. These must be undertaken during the period April to September (May-August optimal), and at least two weeks apart.

We consider that the risk to bats in Building 2, the Tearoom, will remain low and no additional survey work is required prior to the determination of the planning application.

9.2 Mitigation Measures

9.2.1 Bats

Natural England requires that mitigation addresses the impacts picked up by the site assessment, as follows:-

- Quantitative characteristics: There should be no net loss of roost sites, and in fact where significant impacts are predicted there will be an expectation that compensation will provide an enhanced resource compared with that to be lost. The reasoning behind this concept is that the acceptability of newly created roosts by bats is not predictable.

- Qualitative characteristics: the plans should aim to replace like with like. As an extreme example, it would be unacceptable to replace maternity roosts with hibernation sites.

- Functional characteristics: compensation should aim to ensure that the affected bat population can function as before. This may require attention to the environment around the roost.

Natural England also recommends that precautions are taken to avoid the deliberate killing or injury of bats during development work at the site.

The site survey found no evidence of habitual use by roosting bats of the Building 2 in areas affected by the proposed works. although there is a possibility of a low level of opportunistic use at some times of the year. The survey effort was sufficient to allow for an assessment of this to be made.

9.2.1.1 Bat Roosts

As a precautionary approach the following guidelines will be adhered to.

1. Prior to demolition of Building 1, the Bungalow two bat activity surveys are required during the period April to September (May-August optimal), and at least two weeks apart. Further mitigation measures for this building will be confirmed following activity surveys.

2. No further surveys are required prior to proposed works to Building 2, The Tearoom. However, all contractors on the site will be made aware of the possible presence of bats prior to the commencement of work.

3. Contractors will be provided with the contact details of an appropriately qualified individual who can provide advice in relation to bats at any time during work. In the event that bats are found during work, unless the action has already been cleared by a suitably qualified individual, **all work will cease** and an appropriately qualified individual will be contacted for further advice.

4. Contractors will be observant during demolition work for bats which may use the buildings if new areas of the roof are exposed and left open overnight. Bats are opportunistic and may make use of gaps opened up during work overnight.

5. If it is necessary to remove a bat to avoid it being harmed, gloves should be worn. It should be carefully caught in a cardboard box and kept in the dark in a quiet place until it can be released at dusk near to where it was found, or moved to an undisturbed part of the building, with outside access, and placed in a location safe from predators.

6. **If bats or bat roosts are found during work, all work should cease**. The site will need to be re-assessed in regard to its use by bats. A Natural England licence may be required if continuing work is, on balance, likely to result in the disturbance, killing or injury of bats or the alteration, destruction or obstruction of roost site.

7. Remove all roof coverings by hand only.

8. Retain existing confirmed roosts untouched. A licence will be required if these areas are disturbed in any way.

9. Consider including at least six gaps along the eaves lines of the new areas of the building which allow access to the wall tops under the eaves. A plan for this type of roost is shown on Figure 7. These potential roost sites will be a significant improvement on existing site conditions.

10. There is no need to restrict the timing of work. Use of the structure by bats is equally likely to occur at any time of the year but will be at low levels.

11. Consider erecting west or south-west facing bat boxes in suitable places around the site.

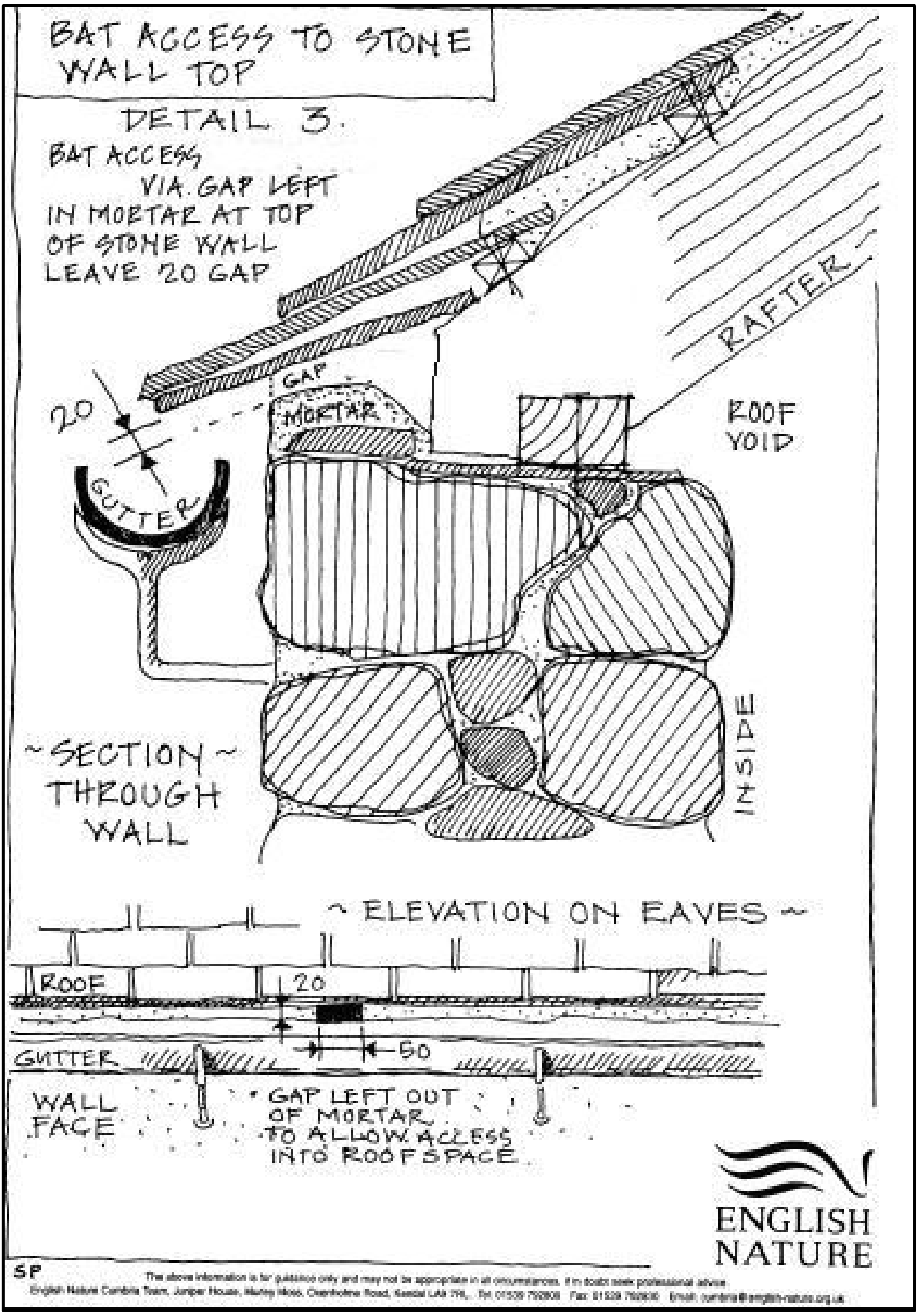

Figure 7 *New roost site creation.*

9.2.1.2 Mitigation for Foraging and Commuting Habitat

No specific mitigation for foraging and commuting habitat is necessary. The habitat surrounding the site does not change significantly.

9.2.1.3 Requirement for Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Licence

At this stage, we judge that a Natural England licence will not be required to cover work on Building 2, the Tearoom. Bats were confirmed as roosting at the site in 2018, however the loss of roost sites will be avoided and no significant disturbance to bats will occur, so long as the recommendations of this report are followed.

Building 1, the Bungalow, may require Natural England Licence if bats are found to be using the building during the bat activity surveys required prior to demolition.

10. MITIGATION SUMMARY

The site survey found evidence of bats roosting in Building 1, the Bungalow and further bat activity surveys are required for this building prior to any works/demolition.

The site survey found no evidence of roosting bats in the areas of Building2, the Tearoom, affected by current proposed works. Known roost sites in 2018 are to remain unaffected, and there was negligible risk of use by roosting bats in the working areas. However, there is a possibility of opportunistic use by low numbers of bats at some times of the year. The level of use is not considered likely to be significant and with the retention/creation of gaps at the eaves and precautionary mitigation, a significant disturbance and/or the loss of roost sites is unlikely to occur.

11. REFERENCES

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APPENDIX 1 PHOTOGRAPHS

Photograph	Notes
	Building 1 The Bungalow Roof well sealed, with covering of moss Timber cladding well sealed
	In 2018 bats emerged from gaps beneath chimney flashing, now more obscured due to growth of Buddleia. Gaps around porch remain, from where bats emerged in 2018. Stonework remains well sealed
	

<table>
<tr><td>  </td><td>Droppings were found in void of Building 1. These were DNA tested in 2018 and results returned as Natterer's bat droppings</td></tr>
<tr><td>  </td><td rowspan="2">Building 2 The Tearoom

Walls and roof well sealed overall</td></tr>
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	Very narrow gabs behind guttering covered cobwebs
	Previously identified roost site unaffected by current proposals
	Roof void found to be very clean.

WARWICK
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EcoWarwicker
Ecological Forensics

21 June 18

Re: Identification Results for Andrew Gardner, Envirotech

Job number 11939, received 07 June 2018
Sample labelled: 4669 Holden Clough 31/5/18
PCR amplification successful. DNA sequence:
ATGACCAACATTCGAAAGTCTCACCCCCTAATGAAAATTATCAATAACTCCTTTATTGA
CCTACCCGCTCCATCAAATATCTCTTCCTGATGGAATTTCGGATCTCTTTTAGG

Phylogenetic analysis identification: *Myotis nattereri*

Confirmed by maximum likelihood, maximum parsimony, bootstrap 100%.

Best regards,

Professor Robin Allaby

The results and conclusions in this report are based on an investigation of mtDNA sequence analysis. The results obtained have been reported with accuracy. The interpretation represents the most probable conclusion for the DNA sequence obtained rather than the sample provided given current levels of species data. It should be borne in mind that different circumstances might produce different results. Therefore, care must be taken with interpretation of the results especially if they are used as the basis for commercial recommendations.

Professor Robin Allaby

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