

**MIRA TECHNOLOGY PARK SOUTH SITE
WATLING STREET, WARWICKSHIRE**

BAT SURVEYS

A Report to: ERI MTP Limited

Report No: RT-MME-154920-04 Rev B

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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 “Biodiversity, Code of practice for planning and development”.

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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management’s Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

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

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In May 2021, ERI MTP Limited commissioned Middlemarch Environmental Ltd to undertake bat surveys of the site of a proposed development South of Watling Street near Caldecote, Nuneaton. This assessment is required to inform an assessment of the potential ecological impacts of a planning application associated with the construction of commercial units and associated infrastructure.

To fulfil the above brief to assess the potential for the existing buildings and trees on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 12th July 2021. This survey identified buildings with moderate and high bat roost potential and 16 trees with moderate or high bat roosting potential. A further 19 trees and three groups of trees have been identified with low roosting potential, the vast majority of which are large mature trees that are of an age and size where it is considered likely that they may have developed potential roost features but none were observed at the time of the survey. It should be noted that much of the upper canopy in these trees were obscured by leaves at the time and this was a constraint of the survey.

Evidence of bat activity (scattered droppings, mostly old) were identified in three of the sections of the farm building complex. It was considered that these droppings could be associated with daytime roosts, but may also be a result of from foraging and exploratory visits. As a result, and given that the majority of the potential roost features in the buildings and trees were too high for a detailed inspection, further survey work, in the form of dusk emergence and dawn re-entry surveys, were required.

Three bat surveys were carried out in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016). All buildings on site and two trees were subject to these further surveys as initial plans showed their removal as part of the proposals.

Two dusk emergence surveys and one dawn re-entry survey were undertaken between 13th August 2021 and 13th September 2021. Very low levels of bat activity were recorded during the first two surveys, with a greater level of activity noted during the final survey. Only two species, common pipistrelle and noctule, were detected during the three surveys. During the dawn survey a single pipistrelle was observed entering Tree T4 confirming this as a roost for low numbers of common pipistrelles. During the final emergence survey a single common pipistrelle bat was observed exiting the roof of Section 5 within the main farm complex and a second bat was considered likely to have emerged shortly after, confirming Section 5 of the farm building complex as a roost for low numbers of common pipistrelles.

The current site plans require that all buildings will be demolished. A Natural England Licence will be required to undertake any work that would damage, destroy or block access to the confirmed roost in Section 5, or disturb bats within those roosts. As all sections of the farm complex are interconnected it is considered likely that any uncontrolled building demolition has the potential to disturb the identified bat roost in Section 5. In addition, whilst no confirmed roosts have been identified within other sections of the farm complex during the dusk emergence or dawn re-entry surveys, evidence of bat activity (scattered droppings and feeding remains) has been identified and it is considered that bats could roost in these sections on an occasional basis. A recommendation has been made in relation to obtaining a Natural England Licence to avoid breaches in legislation.

Current site plans show the retention of Tree T4 and the field boundary in which it is located. These features, and all moderate and high potential trees, must be protected from accidental damage and other construction related impacts during the construction phase and from impacts from lighting in the operational phase. Should this not be possible, further survey work will be necessary to identify the presence of roosts within them.

The only trees currently proposed for removal are Trees T1 and T6, assessed as having low potential, and Trees T5 and T7, assessed as having negligible potential. Trees T1 and T6 are mature trees of a size and age that make it likely that they contain potential roosting features, although none were identified at the time of the survey. As the survey was constrained by the presence of a leafy canopy, a precautionary recommendation is provided in relation to further assessment of these trees.

The current site proposals show that the boundaries that include trees of moderate and high bat potential have buffers of semi-natural planting proposed. If planted with appropriate wildlife attracting habitats and

species, this would be a beneficial impact of the proposal as it would provide increased foraging habitat for bats on site. It is also vital that these trees and tree-lines remain unlit in the operational phase of the development so that roosts are preserved and flight lines are not disrupted. Recommendations have been made in relation to lighting and planting at the site.

Following the results of the Preliminary Bat Roost Assessment, and subsequent dusk emergence and dawn re-entry surveys, the following recommendations have been made:

- **Farm Complex: Natural England Licence Application:** As a confirmed bat roost has been identified in Section 5 of the farm complex, which is connected to other sections of the farm complex where evidence of possible further roosting activity (bat droppings) has been identified, no unlicensed work can be undertaken. Prior to any works being undertaken which are likely to result in a breach of the legislation, a development licence must be obtained from Natural England.
- **High and Moderate Bat Potential Trees: Retention and Protection:** All trees with moderate or high potential to support roosting bats should be retained and protected, and a Construction Ecological Management Plan (CEcMP) should be prepared that controls any work that might damage/disturb bat roosts within these trees, such as inappropriate noise, vibrations or lighting.
- **Low Bat Roosting Potential Trees:** Where trees identified with low bat roosting potential are to be felled or otherwise impacted by the proposal, these trees should be subject to a further ground level assessment over winter, when potential roost features are less likely to be obscured by leaves. The results of this survey should inform requirements for further survey assessment or the implementation of precautionary measures during tree removal, such as 'soft felling' under ecological supervision.
- **Lighting:** In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species.
- **Habitat Enhancement for Foraging and Roosting Bats:** In line with the National Planning Policy Framework, the development should aim to enhance the site for bats.

Full recommendation text can be found within Chapter 7 of this report.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In May 2021, ERI MTP Limited commissioned Middlemarch Environmental Ltd to undertake Bat Surveys at the site of a proposed development situated to the south of Watling Street near Caldecote, Nuneaton. These surveys are required to inform a planning application associated with the construction of commercial units and associated infrastructure.

Middlemarch Environmental Ltd has previously carried out ecological surveys at a site north of Watling Street. These surveys include:

- Preliminary Ecological Appraisal (Report RT-MME-151432-01);
- Preliminary Bat Roost Assessment (Report RT-MME-154919-01); and,
- Great Crested Newt Survey (Report RT-MME-154919-03).

Bat, reptile and badger surveys are also being undertaken at the site north of Watling Street, the results of which will be detailed in Reports RT-MME-154919-02, RT-MME-154919-04 and RT-MME-154919-05 respectively.

In addition, Middlemarch Environmental Ltd was commissioned to undertake the following assessments for the MIRA Technology Park South Site:

- Preliminary Ecological Appraisal (Report RT-MME-154920-01 Rev B);
- Great Crested Newt Habitat Suitability Index Assessment and eDNA Survey (Report RT-MME-154920-02 Rev B);
- Badger Survey (Report RT-MME-154920-03 Rev B);
- Bat Activity Surveys (Report RT-MME-154920-05 Rev B);
- Breeding Bird Survey (Report RT-MME-154920-06 Rev A); and,
- Reptile Survey (Report RT-MME-154920-07 Rev A).

To fulfil the above brief to assess the potential for the existing buildings and trees on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 12th July 2021. Further survey work, in the form of Dusk Emergence and Dawn Re-Entry Surveys, was undertaken between 13th August 2021 and 13th September 2021.

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

1.2 SITE DESCRIPTION AND CONTEXT

The proposed development site is located to the South of Watling Street near Caldecote in Warwickshire. Its central grid reference is approximately SP 358 951. The surrounding landscape is predominantly agricultural although the town of Nuneaton lies nearby to the south and the village of Caldecote is situated to the west. The northern boundary of the site is formed by Watling Street (the A5) and the south-western boundary by Weddington Lane (the A444). The south-eastern boundary abuts other fields, but a dismantled railway line, now the Weddington Way, is situated nearby, joining the proposed development site in the northeastern corner of the site.

The site is approximately 69 ha in size and dominated by arable fields. Field margins comprise hedgerows and a stream flowed from north to south through the centre of the site. The Elms Farm is also situated within the site. This comprises a residential dwelling and a complex of barns and associated gardens. Two farm ponds are also present on site.

1.3 DOCUMENTATION PROVIDED

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

Document Name / Drawing Number	Author
Masterplan Option 10 B / 21092 SGP XX 00 DR A 111010 Rev M	SGP Architects + Masterplanners

Table 1.2: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-154920-01 Rev B) an ecological data search was undertaken. The consultees for the desk study were Warwickshire Biological Records Centre (in August 2020) and Leicestershire and Rutland Environmental Record Centre (in October 2021).

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by these organisations. Relevant bat data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

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

2.2 PRELIMINARY BAT ROOST ASSESSMENT

In line with the specifications detailed in Bat Mitigation Guidelines (English Nature, 2004) and Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), a Preliminary Bat Roost Assessment of the buildings and trees was conducted during daylight hours. A visual assessment was undertaken to determine the presence of any potential roost features, together with a general appraisal of the suitability of the site for foraging and commuting. Table 2.1 provides examples of potential roost features. Any accessible potential roost features were inspected using binoculars, a torch and endoscope for evidence of possible bat presence. Buildings were surveyed externally and internally.

For reasons of health and safety, the survey was only undertaken in areas accessible from 3.5 m ladders.

Based on the PRF's present, the survey area was assessed using the suitability classes detailed within Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), as detailed in Table 2.2. Trees with features present that are suitable to support roosting bats (high and moderate suitability) are discussed more fully in the report.

A summary of the trees within the survey area without suitable features to support roosting bats (low and negligible suitability) is provided within the report. Due to their negligible potential to support roosting bats, the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) recommend no further survey work is required for these tree classes.

Example of Potential Roost Features	
Buildings	
<u>Externally</u>	
	• Access through window panes, doors and walls; • behind peeling paintwork or lifted rendering; • behind hanging tiles; • weatherboarding; • eaves; • soffit boxes; • fascias; • lead flashing; • gaps under felt (even including those of flat roofs); • under tiles/slates; • existing bat and bird boxes; and, • any gaps in brickwork or stonework permitting access into access to cavity- or rubble-filled walls.

Table 2.1: Potential Roost Features (Adapted from Collins 2016 and BSI 2015) (cont)

Example of Potential Roost Features	
Internally	• behind wooden panelling; • in lintels above doors and windows; • behind window shutters and curtains; • behind pictures, posters, furniture, peeling paintwork; • peeling wallpaper, lifted plaster and boarded-up windows; • inside cupboards and in chimneys accessible from fireplaces. • within attic voids: • the top of gable end or dividing walls; • the top of chimney breasts; • ridge and hip beams and other roof beams; • mortise and tenon joints; • all beams (free-hanging bats); • the junction of roof timbers, especially where ridge and hip beams meet; • behind purlins; • between tiles and the roof lining; and, • under flat felt roofs.
Trees	• Bat, bird and dormouse boxes on trees; • Cankers (caused by localized bark death) in which cavities have developed; • Compression forks with included bark, forming potential cavities; • Cracks/splits in stems or branches (both vertical and horizontal); • Crossing stems or branches with suitable space between for roosting; • Ivy stems with diameters in excess of 50 mm with suitable roosting space behind (or where a roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk); • Man-made holes (e.g. cavities that have developed from flush cuts); • Natural holes (e.g. knot holes) arising from naturally shed branches, or cavities created by branches tearing out from parent stems; • Other hollows or cavities, including rot holes and butt rots; • Partially detached or loose, platy bark; • Woodpecker holes; or, • Other features that offer a place of shelter.

Table 2.1 (cont'd): Potential Roost Features (Adapted from Collins 2016 and BSI 2015)

Suitability	Description
High	A structure 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. A 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.
Moderate	A structure 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). A 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).
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential 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). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Negligible	Negligible habitat features on site likely to be used by roosting bats.

Table 2.2: Classification of Structures and trees with Bat Potential (Adapted from Collins, 2016)

2.3 DUSK EMERGENCE AND DAWN RE-ENTRY SURVEYS

2.3.1 Overview of Dusk Emergence and Dawn Re-entry Surveys

Given that trees and buildings with high bat roosting potential and buildings with moderate potential and signs of bat activity were present and contained features that could not be fully inspected due to their height, three bat surveys were carried out in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016). These comprised two dusk emergence bat surveys and one dawn re-entry bat survey. The aim of these surveys was to determine whether bats are roosting within the buildings and trees, and to enable a profile of site utilisation by bats to be compiled. All buildings on site and two trees were subject to these further surveys as initial plans showed their removal as part of the proposal.

2.3.2 Dusk Emergence Bat Surveys

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

2.3.3 Dawn Re-entry Bat Survey

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

3. DESK STUDY

3.1 STATUTORY NATURE CONSERVATION SITES

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

3.2 SPECIES RECORDS

The data search was carried out in August 2020 by Warwickshire Biological Records Centre, and Leicestershire and Rutland Environmental Record Centre in October 2021. Records of bat species within a 1 km radius of the survey area provided by the consultee are summarised in Table 3.1. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area*	Species of Principal Importance?	Legislation / Conservation Status
Noctule <i>Nyctalus noctula</i>	8	2017	390 m south-west	✓	ECH 4, WCA 5, WCA 6, LBAP ¹ , LBAP ²
Common pipistrelle <i>Pipistrellus pipistrellus</i>	14	2017	390 m south-west	-	ECH 4, WCA 5, WCA 6, LBAP ²
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	4	2017	390 m south-west	✓	ECH 4, WCA 5, WCA 6, LBAP ¹ , LBAP ²
Brown long-eared bat <i>Plecotus auritus</i>	5	2017	390 m south-west	✓	ECH 4, WCA 5, WCA 6, LBAP ¹ , LBAP ²
Unidentified bat <i>Chiroptera</i> sp.	3	2013	440 m south	#	#, LBAP ²
Daubenton's bat <i>Myotis daubentonii</i>	1	2013	440 m south	-	ECH 4, WCA 5, WCA 6, LBAP ²
Unidentified myotis <i>Myotis</i> sp.	3	2017	440 m south	-	ECH 4, WCA 5, WCA 6, LBAP ²
Leisler's bat <i>Nyctalus leisleri</i>	1	2017	820 m north-east	-	ECH 4, WCA 5, WCA 6 LBAP ²
Key: #: Dependent on species. ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation. ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection. WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods. Species of Principal Importance: Species of Principal Importance for Nature Conservation in England. Local: Warwickshire Local Biodiversity Action Plan (LBAP ¹); Leicestershire and Rutland Local Biodiversity Action Plan (LBAP ²).					

Table 3.1: Bat Species Records Within 1 km of Survey Area

4. PRELIMINARY BAT ROOST ASSESSMENT RESULTS

4.1 INTRODUCTION

The Preliminary Bat Roost Assessment was conducted on 12th July 2021 by Hannah Lewis MCIEEM (Senior Ecological Consultant and licenced bat surveyor 2015-15224-CLS-CLS). Drawing C154920-04-01 illustrating the layout of the buildings on site and Drawing C154920-04-02 illustrating the locations of trees are provided in Chapter 8 and photographs in Chapter 9. Weather conditions are presented in Table 4.1.

Parameter	Conditions
Temperature (°C)	18
Cloud Cover (%)	0
Precipitation	None
Wind Speed (Beaufort)	F3

Table 4.1: Weather Conditions During the Preliminary Bat Roost Assessment

4.2 CONSTRAINTS

The assessment of trees for potential roost features was inhibited by the time of year as leaves were present on the trees. This obscured the view of the upper canopy in large mature trees from a ground level inspection and may obscure potential roost features. A precautionary approach has therefore been taken to recommendations in relation to tree felling and re-survey requirements.

Some sections of the farm complex building could not be fully internally inspected. There was no access into the roof cavity of Section 8 of the building. Section 3.1 had a tarpaulin canopy present that obscured the entire roof structure in this location and would prevent bat droppings from any roosts in the roof being found. This was a significant constraint to the inspection of this Section of the farm complex. Section 1 also had a small section of the roof obscured by material although this was not considered to be a significant constraint of the survey due to the low potential of the building, the limited area obscured and its location.

The internal inspection of Section 5 was undertaken, but nesting swallows were present at the time and so the inspection was kept brief to minimise risk of disturbance to the nesting birds.

The wooden first floor in Section 6 was partially rotten in some areas, limiting access and inspection in those locations, however, the majority of the first floor could be searched for signs of bats and this is not considered to be a limitation of this survey.

The section of loft space between the southern gable and the chimney in Section 9 of the farm complex could not be accessed for a detailed search for evidence of use by bats due to limited access space and a thick double layer of insulation obscuring the location of rafters. Although only deemed to have moderate potential, this has been subject to three emergence/re-entry surveys as a precaution to combat this limitation of the survey.

4.3 SURVEY RESULTS: BUILDINGS

Included within this survey are a series of farm buildings and two trees. The main farm complex comprised nine sections in a "U" shape around a courtyard. In addition is a barn "Barn 1" to the east of this farm complex. The farm complex and barn are shown on Drawing C154920-04-01 and are described below. Photographs have been provided in Chapter 9.

4.3.1 Farm Complex

Section 1

External Assessment

This section of the farm complex was a former pigsty and was of brick construction with a pitched roof. It had two low entrances with no doors that provided flight access to the structure from the courtyard. The brickwork was generally in good condition, however some decorative bricks were missing on the southern elevation. Some gaps were noted at the top of the wall plate where the roof overhung the brickwork. These provided access into the structure from the south. The roof was pitched and made out of corrugated metal with a tile ridge. Gaps were noted under the tile ridge that may provide bat access along the ridge.

Internal Assessment

Internally the space was split into two sections. Parts of the roof in the western section of this building were obscured by plastic sheeting, meaning they were not able to be fully assessed. The metal roof had a wooden frame. Gaps were noted between the woodwork and the ridge, some of which were cobweb free. These may provide access to gaps between the ridge tiles and the ridge beam that could be used by roosting bats.

The roosting potential of this section of the building was considered to be moderate due to the potential gap under the ridge tiles. No bat droppings or evidence of bats was recorded.

Section 2

External Assessment

This was a brick section which was generally in good condition, however there were missing bricks on the western elevation which had been partially blocked with chicken wire. This would provide access to the internal area in this section. The roof was pitched with slate tiles with many gaps noted under the tiles. Lead flashing was present on the roof and this was noted to be lifted in places creating potential roosting locations which were not able to be assessed due to their height.

Internal Assessment

No loft space or sarking were present within this section. A timber frame supported the bare tile roof. The internal space was very dusty with old bird nests noted. Potential roosting locations in this building comprised only of gaps between the bare slate tiles and wooden frame.

Roosting potential was considered to be low and no evidence of bats or bat activity was found present.

Section 3

External Assessment

This section comprised a long single-story building that formed the entire western side of the courtyard. It was of brick construction with a pitched, slate roof. The mortar between much of the brickwork was perished and was noted to form deep gaps in some of the accessible areas around the building buttresses. It was not possible to fully inspect these crevices due to their location and depth. The slate roof had many missing tiles which created potential roosting locations and ingress opportunities to the internal areas of the building. In addition, gaps were noted between the ridge tiles where the mortar had perished. These gaps created ingress points into potential roosting features that were not able to be inspected due to their height. Wooden framed glass windows were present in the northern part of this building. These were in good condition and provided no bat access. Wooden shuttered windows into the courtyard in the southern part of this building provided bat access into the building.

Internal Assessment

Section 3 was sub-divided into five internal sections. These have been numbered 3.1 – 3.5 from the south.

Internal Section 3.1 had tarpaulins suspended from the ceiling, obscuring all visual inspections of the roof structure. The room was dusty and mouse dropping were observed. No bat droppings or signs of bats were recorded.

Internal Section 3.2 had a wooden frame. No sarking was present. The wooden frame included gaps between beams and small cracks in beams. These provide potential roosting features for bats.

Ten bat droppings were found within this section. Whilst these were scattered throughout the room, a few were noted in the southeast corner of the room near a shuttered window that would provide bat access and also in the vicinity of a crack in a beam. These bat droppings were old making it difficult to determine the species due to their composition and degradation.

Internal Section 3.3 was linked to Sections 3.2 and 3.4. Partial dividing walls were present but flight access was present through doorways. This had a similar structure to Section 3.2. Five bat droppings were found that resembled those of brown long-eared bat. A few butterfly wings were present, which could be feeding remains from bats or from swallows, which were nesting in the barn.

Section 3.4 linked to Section 3.3 and was similar in construction. This section had glass windows that would not allow bat access but was otherwise similar in construction to the other sections. No droppings or other evidence of bat activity was noted. A swallow nest was present in this section.

Section 3.5 was separated from Section 3.4 by a wooden dividing wall, although it is considered likely that gaps would be present around this that would provide bat access. It was similar in construction to the other sections, with no sarking noted and some cracks in the wooden beams providing potential roosting locations. Two old bat droppings were found adjacent to the wall separating this section from Section 4.4. These bat droppings were old making it difficult to determine the species due to their composition and degradation.

Overall Section 3 is considered to have moderate roosting potential; it had multiple potential roosting locations but would be unlikely to support roost types with larger numbers of bats such as maternity roosts.

Section 4

External Assessment

This section was constructed from brick with a pitched roof comprising corrugated asbestos or similar material with terracotta ridge tiles. These ridge tiles were arranged in such a way that many gaps were created underneath and in between them.

Internal Assessment

This section had sound insulation present on the wall which was noted to have some small gaps behind with the potential to provide roosting locations for bats. These gaps were not able to be fully assessed due to their locations. Two beams were present supporting the corrugated roof but no ridge beam was present and the ridge tiles were balanced straight onto the roofing material. No further bat roosting features were noted during the internal assessment and no evidence of roosting bats was found within this section.

Section 4 is considered to have low bat roosting potential.

Section 5

External Assessment

This was a building of brick construction with a slate tiled roof. The roof was generally in good condition but a hole with missing tiles on the northern pitch provided flight access for bats, gaps were present on the southern pitch where tiles had slipped and gaps were present under lifted ridge tiles. Gaps were present under the eaves and around extruding roof beams. These gaps all provide ingress opportunities for bats into the building. Wooden doors and wooden and glass shutters were present around the building which were in good condition, but the windows were open at the time of the survey, providing flight access for nesting swallows and it is anticipated these are left open throughout the summer at least.

Internal Assessment

No loft space or sarking were present within this section. A timber frame supported the bare tile roof. Potential roosting locations in this building comprised only of gaps between the bare slate tiles and wooden frame. Only a brief internal inspection was made as nesting swallows were present in this section of the building, but no bat droppings or other signs of bat activity were noted.

This section was deemed to have a moderate suitability to support roosting bats.

Section 6

External Assessment

This was a two-storey brick building with a gable ended pitched slate tile roof. The brickwork was in good condition, however potential locations that provided access for bats included two ventilation bricks on the gable end, gaps under the eaves and around roof beams extending beyond the brickwork on the eastern elevation. A large number of missing and slipped tiles were noted where flight access would be possible for bats. A broken window pane also had potential to allow flight access for bats.

A single-storey lean-to was present on the eastern elevation constructed from bricks with a corrugated asbestos (or similar) roof. The pitched roof had gaps under the eaves which create potential ingress points into the lean-to. The weather board around this section was fitted tightly to the brickwork and no potential roosting locations or ingress points were noted.

Internal Assessment

No loft space or sarking were present within this section. A timber frame supported the bare tile roof. The first storey floor was constructed of wood with metal girders and wooden beams supporting it. Potential roosting locations in this building comprised small gaps in this timber frame and between the timbers supporting the wooden floor. Wooden stairs were present between the floors with open flight access between the two.

The features observed in the building were considered to have a low-moderate suitability for roosting bats. Two bat droppings were noted to be present on the stairs within this section. This was approximately underneath the window with a broken glass pane. These were considered likely to be pipistrelle droppings.

Section 7

External Assessment

This brick-built section had a slate, pitched roof with ridge tiles. The roof and ridge tiles were in good condition with no missing or slipped tiles noted. The ridge tiles, however, included raised tiles that created potential ingress points into the building. The gable end of this building was in good condition with no gaps noted.

A lean-to was present on the eastern elevation. This was constructed from a combination of wood, metal and plastic panels with a wooden frame. Gaps were noted at the edges of the roof and over the window which allow internal access into the lean-to.

Internal Assessment

No loft space or sarking were present within this section. A timber frame supported the bare tile roof. The timber frame appeared more modern than in other sections and the woodwork was in good condition with limited roosting opportunities noted. The gaps between the tiles and supporting wood frame could provide roosting opportunities. This section was considered to provide low to moderate roosting potential. Two wooden framed windows were present, both left open at the time of the survey. A small number of scattered bat droppings were present throughout the internal space with the majority being old and partially decomposed, making it difficult to determine the species due to their composition and degradation. One fresh bat dropping was noted and resembled that of brown long-eared bat.

No features were noted within the lean-to with roosting potential. No evidence of bats or bat activity were noted within the lean-to.

Section 8

External Assessment

This building was of brick construction with a lean-to present on the eastern elevation. The roof was pitched with concrete tiles and was noted to be in good condition with no significant gaps noted. Concrete ridge tiles were present and gaps were noted under them which had the potential to provide suitable roosting locations or ingress points into the building. Wooden weather boarding was present around the building which was not possible to inspect due to its height. It was noted that the lean-to section of the building was immediately below the weather boarding meaning no drop-zone was present, reducing the suitability of this feature for roosting bats.

The lean-to was constructed from a combination of wood, metal and plastic panels and a corrugated asbestos roof. Gaps were present into the lean-to.

Internal Assessment

Section 8 formed part of the residential house and was inhabited. No access points were present to inspect the cavity between the ceiling and the roof. Given the presence of a cavity, the location above a heated residential area and the access points noted into this roof, Section 8 is deemed to have high potential to support roosting bats as it could be used for a maternity colony.

No features were noted within the lean-to with roosting potential. No evidence of bats or bat activity were noted within the lean-to.

Section 9 (Residential House)

External Assessment

This two-storey brick building was partly rendered and painted. It was noted to be in good condition with no cracks or gaps noted in the brickwork or in the render. The building was "T-shaped" with three gable ends to the roof, facing approximately south, west and north. The roof was pitched with slate tiles. The roof was generally in good condition, but some gaps were noted where roof tiles had slipped. Mortar was noted to be missing between many of the ridge tiles along the roof, providing potential access points for bats. On the western elevation of the building was a rendered chimney. This chimney was in good condition with no cracks or gaps noted.

Internal Assessment

A "T" shaped loft space was present. The roof had a wooden frame onto which the slate tiles were laid with no sarking or torching present. Slipped tiles allowed daylight in and would provide access points for bats. The ridge beam was heavily cobwebbed suggesting no recent use by bats. Thick insulation was present. Two chimneys were present. One was rendered and the other bare brick. The chimney on the western gable end could be fully inspected and no gaps were noted that could provide roosting opportunities for bats. The chimney within the southern section of the loft was also in good condition but could only be inspected on one side as access was not possible around this due to the small size of the access point and a double layer of insulation preventing identification of rafters. This also obstructed a small section of the southern loft space including the area around the southern gable end for inspection.

Overall, the loft space was considered to provide moderate roosting potential for bats. No droppings or other evidence of bat activity were noted, although as described, a small portion of the loft could not be accessed for a detailed search.

4.3.2 Barn 1

External Assessment

This was a long wooden structure with a pitched tiled roof. Missing roof tiles created direct flight access into the building. Missing and broken timbers on both gable ends provided access, including flight access into either end of the barn. Doors into the structure included some that had been left open at the time of the survey and one that was usually left closed and locked. Open doors will provide flight access for bats.

Open-sided lean-tos were present on both gable ends. These were corrugated metal structures with no bat potential noted.

Internal Assessment

No loft space was present within this barn with the underside of the roof visible from the internal space. The tiled roof was supported by a wooden frame. No sarking or torching were present on the underside of the roof tiles. Small gaps were noted around the woodwork and cracks were present in the beams. These had potential to provide suitable roosting locations for bats. It was not possible to fully inspect these features due to their heights and locations. This internal space is sub-divided by wooden walls into three compartments used for a chicken house, garage and timber storage. No bat droppings or other evidence of bat activity were recorded in the barn.

Overall, the barn is considered to have moderate roosting potential; it had multiple potential roosting locations but would be unlikely to support roost types with larger numbers of bats such as maternity roosts.

Summary of Farm Complex

Table 4.2 Provides a summary of the findings and assessments for each of the sections of the farm complex and Barn 1.

Building	Section	Evidence of Bat Presence	Constraints to survey	Roosting Potential
Farm Complex	1	None	None	Moderate
	2	None	None	Low
	3	Low numbers of aged, scattered droppings in Sections 3.2, 3.3 and 3.5. Some resembled those of brown long-eared bat. Butterfly wings present may be feeding remains from bats or swallows.	The roof in internal Section 3.1 could not be viewed due to tarpaulins fixed under the roof.	Moderate
	4	None	None	Low
	5	None	Nesting swallows caused reduction in internal search effort.	Moderate
	6	Two likely pipistrelle droppings were noted to be present on the stairs under a broken window.	Small areas of rotten floor limited internal search.	Moderate
	7	Low numbers of aged scattered droppings and a fresh dropping resembling that of brown long-eared bat.	None	Moderate
	8	None	No inspection of roof cavity.	High
	9	None	Small area of loft space at the southern gable could not be accessed.	Moderate
Barn 1	n/a	None	None.	Moderate

Table 4.2: Summary of Potential Bat Roost Inspection.

4.4 TREES

This survey included all trees on internal boundary hedges, around two ponds within the site and along the eastern boundary hedge. Three trees located in the adjacent road verge on Weddington Lane were also included as their removal is proposed to facilitate access to the site. The location of the trees surveyed are shown on Drawing C154920-04-02.

Excluded from this assessment were trees present in the site boundary of the westernmost field which are situated more than 100 m from the proposed development and trees situated in road verges outside the site that would not be affected by the proposed site entrance.

The survey identified seven trees with high bat roosting potential and nine with moderate bat roosting potential.

A further 19 trees and three groups of trees have been identified with low roosting potential. The vast majority are large mature trees that are of an age and size where it is considered likely that they may have developed potential roost features but none were observed at the time of the survey. Some of the trees classed as having low roost potential are trees where features with some limited potential to be used by low numbers of bats occasionally have been identified. Due to the leaves constraining the viewing of the upper areas of these trees, these have been mapped on Drawing 154920-04-02 and a precautionary recommendation has been provided in relation to felling and re-survey requirements.

Table 4.3 summarises features of trees that have been identified with high and moderate potential to support roosting bats.

Map Reference	Location	Description	Roosting Potential
T3	SP 35676 95017	Mature ash <i>Fraxinus excelsior</i> containing significant deadwood in crown. Contained woodpecker holes and rot holes.	High
T4	SP 35688 95016	Mature ash containing significant deadwood in crown. Contained a possible rot hole in trunk at approximately 10 m in height and a rot hole in the end of a branch on the southern side of the tree at approximately 5 m in height.	High
T9	SP 36119 94682	Mature ash <i>Fraxinus excelsior</i> containing significant deadwood in crown. Contained woodpecker holes and at least three rot holes.	High
T11	SP 36169 94707	Mature ash with deadwood in the crown and two small rot holes that look likely to extend into tree and other small rot holes which may extend into tree.	High
T12	SP 36213 94726	Mature ash with a rot hole noted at approximately 6 m in height that may extend into the tree. This is cluttered and as it is upward facing could be open to the elements and could not be fully viewed from the ground and could provide access to a deeper cavity.	Moderate
Group 5	SP 3622 9474	Seven mature oaks <i>Quercus robur</i> situated very close together. Whilst two of these had no observable potential roost features, one had high bat roost potential and the other four had Moderate bat roost potential. These five trees had dead wood in canopies with split limbs, peeling bark and rot holes noted within them.	Moderate and High
T14	SP 36259 94770	Mature oak with dead wood in canopy and included bark that may offer potential summer roost locations.	Moderate
T16	SP 36295 94789	Two mature oaks growing together with a rot hole with high potential located under a branch overhang on the western side of one trunk at approximately 5 m in height.	High
T18	SP 36363 94829	Mature ash with large rot holes at approximately 3 m and 4 m in height on the western side of the tree. These could be open to the elements but their depth and extent is unknown.	High
T21	SP 36404 94849	Mature oak with a small hole on the underside of a branch at approximately 5 m in height on the western side of the tree.	Moderate
T26	SP 36498 94857	Mature horse chestnut <i>Aesculus hippocastanum</i> with good features for roosting bats including a crack in the trunk to 3 m in height and included bark to 4 m on the west side of the trunk, but very cluttered, inhibiting the flight zone around it.	Moderate
T27	SP 36515 94863	Mature oak with dead wood in canopy. Features included loose bark and included bark around dead limbs.	Moderate

Table 4.3: Descriptions of Trees with Moderate and High Potential to Support Bat Roosts

4.5 SITE AND SURROUNDING HABITATS

The site provides suitable foraging habitats for bats in the form of hedgerows and the small waterbodies present. The hedgerows also provide commuting opportunities and connectivity to the wider arable landscape.

Habitats within 1 km of the site suitable for roosting, commuting and foraging include:

- Residential houses and associated gardens;
- Farm houses and associated agricultural buildings;
- Pockets of woodland; and,
- Agricultural fields with tree and hedge lined boundaries.

The site and the wider surroundings are considered to provide some commuting and foraging habitats, however due to the dominance of arable fields, the habitat is not considered high value for bats.

5. DUSK EMERGENCE & DAWN RE-ENTRY SURVEY RESULTS

5.1 INTRODUCTION

Dusk emergence and dawn re-entry surveys were undertaken on the buildings and Trees T3 and T4 as initial site plans indicated that these may be lost as part of the proposed development. Three surveys were undertaken (two dusk surveys and one dawn survey) between 13th August and 13th September 2021. The results of these surveys are outlined in Sections 5.2 to 5.5 and illustrated in Drawings C154920-04-03 and C154920-04-04 in Chapter 8.

5.2 FIRST DUSK EMERGENCE SURVEY

The first dusk emergence survey was undertaken on 13th August 2021 by the following personnel:

- Tim Hextell (Principal Technical Ecological Consultant);
- Chris Hayton (Executive Director);
- Dorothy Dunne (Ecological Project Officer);
- Lindsay Hubert (Ecological Project Assistant);
- Sophie Hextell (Field Assistant);
- Jordan Rathbone (Field Assistant);
- Wilmie Van Rooyen (Field Assistant);
- Jess Jehu (Field Assistant);
- Victoria Oxley (Field Assistant);
- Dean Moore (Field Assistant); and,
- Stefan Harrison (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 5.1.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	19	18
Cloud Cover (%)	80	40
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F1-2	F1-2

Table 5.1: Weather Conditions During First Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:35 hrs (BBC Weather Centre Data for Nuneaton). Two species of bat, noctule *Nyctalus noctula* and common pipistrelle *Pipistrellus pipistrellus*, were recorded during the survey.

Farm Complex

Noctule

From 20:46 two noctules were observed commuting from the north of the farm complex in a south-westerly direction across the buildings and foraged high over the fields to the west of the farm complex until approximately 21:03. At 21:22 a noctule was detected but no visual contact was made.

Common pipistrelle

Common pipistrelles were detected throughout the survey but no visual contact was made.

Trees

No bat activity was recorded in the area surrounding the trees.

5.3 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 27th August 2021 by the following personnel:

- Hannah Lewis (Senior Ecological Consultant);
- Chris Hayton (Executive Director);
- Joe Taylor (Ecological Field Officer);
- Joseph Graham (Ecological Project Officer);
- Emily Priest (Field Assistant);
- Jane Adjel (Field Assistant); and,
- Joe Harner (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 5.2.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	12	11
Cloud Cover (%)	100	100
Precipitation	Dry	Dry
Wind Speed (Beaufort)	F0	F0

Table 5.2: Weather Conditions During Dawn Re-entry Survey

The dawn re-entry survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. Sunrise was at 06:04 hrs (BBC Weather Centre Data for Nuneaton). Two species of bat, noctule and common pipistrelle, were recorded during the survey.

Farm Complex

Noctule

At 05:19 a single noctule was observed commuting onto site from the east, flying over the building and exiting the site to the west.

Trees

Common pipistrelle

At 05:09 a single bat was observed swarming around Tree T4 before entering the tree. At 05:19 three common pipistrelle bats were observed circling around both Trees T3 and T4, however they did not enter either of the trees. At 05:27 another common pipistrelle circled around both trees without entering them. At 05:29 a common pipistrelle was observed flying from the west, past the trees and exiting the area to the east of the trees.

Noctule

A noctule was detected at 05:33, however no visual contact was made. At 05:38 and 05:41 noctules were detected flying high over the field behind the trees. These bats did not enter either tree.

5.4 SECOND DUSK EMERGENCE SURVEY

The second dusk emergence survey was undertaken on 13th September 2021 by the following personnel:

- Hannah Lewis (Senior Ecological Consultant);
- James Calow (Senior Ecological Consultant);
- Chris Hayton (Executive Director).
- Rowell Bingham (Ecological Consultant);
- Joe Graham (Ecological Project Officer);
- Archie Neale (Ecological Field Officer);
- Jane Adjei (Field Assistant); and,
- Stuart Greenway (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 5.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	19	17
Cloud Cover (%)	90	100
Precipitation	Dry	Dry
Wind Speed (Beaufort)	F2	F1-2

Table 5.3: Weather Conditions During Second Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 19:27 hrs (BBC Weather Centre Data for Nuneaton). Two species of bat, noctule and common pipistrelle, were recorded during the survey.

Farm Complex

Noctule

At 19:27 a noctule was observed commuting from the north of the site in a southerly direction, along the east of Barn 1, before exiting the site to the south.

At 19:46 a noctule was detected but no visual contact was made. At 19:51 a further noctule was detected, having commuted on to the site, foraging over the farm buildings until 20.04. At 20:10 a further noctule was detected, however no visual contact was made.

At 19:53 a noctule was detected foraging to the north of the site and did not emerge from any of the on site buildings.

Common pipistrelle

A single bat emerged from the roof of Section 5 of the farm complex at 20:03, before flying through the courtyard to the south and exiting the side to the west. Within the same minute a bat flew northeast from the complex, this bat had not been detected within the courtyard and may have emerged from a similar location.

At 20:14 a single common pipistrelle was observed foraging immediately to the north of the farm complex and then flying over the farm building and foraging briefly within the courtyard. From 20:20 until 20:39 there was constant pipistrelle foraging activity within the courtyard with two bats recorded simultaneously at 20:23 and social calling until 20:39. From 20:39 until 20:45 common pipistrelle passes were recorded approximately every minute. A common pipistrelle was detected at 20:57 foraging within the courtyard for a period of approximately a minute.

A single common pipistrelle bat commuted onto site from the north at 20:22, foraged to the north of the buildings and exited the site to the east over Barn 1.

Trees

Noctule

At 19:40 noctule foraging activity was noted between Trees T3 and T4 and within the field to the south of the trees. These bats did not emerge from either of the trees. A noctule foraged along the hedgerow adjacent to the trees at 19:48, this bat did not emerge from either of the surveyed trees.

Common pipistrelle

At 20:16 a single common pipistrelle commuted along the hedgerow from east to west. This bat did not emerge from the trees. At 20:19 a common pipistrelle bat was recorded foraging along the hedgerow to the east of Tree T4 and did not emerge from either of the trees. Between 20:20 and 20:40 there was continual foraging activity detected between the two trees, with bats passing between the two surveyors. None of these bats emerged from either of the trees.

6. DISCUSSION AND CONCLUSIONS

6.1 SUMMARY OF PROPOSALS

The proposal is for the construction of seven commercial units with associated access and parking. The entrance to the site from the A5 will utilise the existing site entrance on the roundabout to the existing Horiba MIRA site to the north. The exit onto the Weddington Lane will require the creation of a new site entrance and junction. The stream that runs centrally through the site will be retained in situ. A new crossing will be created over this to allow vehicular access to the western half of the site. Two internal hedgerows will be lost, but the external site boundary features will be preserved intact except the new entrance proposed onto Weddington Lane. Pedestrian and cycle access is proposed onto the site via the Weddington Walk on the disused railway line at the northeast corner of the site. A band of soft landscaping with planting and pools is proposed along this pedestrian walkway, around the eastern, western and southern boundaries of the site, and along the west of the stream. Whilst some of these pools are proposed for site drainage, it is understood that some are proposed for ornamental and wildlife purposes. No construction work is currently proposed on the westernmost field included in the survey area for this study.

6.2 SUMMARY OF PRELIMINARY BAT ROOST ASSESSMENT

6.2.1 Buildings

The buildings were mostly identified as having moderate bat roost potential, i.e. they had multiple locations which could be used by roosting bats but did not have features likely to be used for maternity roosts. Section 8 of the main farm complex was identified as having high roosting potential and the roof cavity could not be internally inspected.

During the Preliminary Roost Assessment evidence of bat activity (droppings and feeding remains) were found in Sections 3, 6 and 7. The droppings in each of these sections were generally scattered and not associated with a particular feature, although some small collections of droppings were noted. As such, they may be associated with daytime roosts, but could also be from foraging, exploratory visits or feeding roosts, particularly where feeding remains were noted to be present. As such further assessment was required in order to determine the bat roosting status of the buildings.

6.2.2 Trees

Seven trees with high bat roosting potential and nine with moderate bat roosting potential were identified by the survey. A further 19 trees and three groups of trees have been identified with low roosting potential, the vast majority of which are large mature trees that are of an age and size where it is considered likely that they may have developed potential roost features but none were observed at the time of the survey, but it should be noted that much of the upper canopy in these trees were obscured by leaves at the time.

Trees T3 and T4 had high bat roosting potential and early plans suggested they may be removed as part of the development. As such further survey was required to determine their bat roost status.

6.3 SUMMARY OF BAT SURVEYS

6.3.1 Buildings

During the dusk emergence surveys a single common pipistrelle bat was observed exiting the roof of Section 5 of the farm complex and a second was considered likely to have emerged shortly after. No other bats were seen emerging from any of the buildings on site. Common pipistrelles and noctules were observed commuting and foraging around the site during the surveys, particularly within and over the courtyard in the centre of the farm complex.

6.3.2 Trees

During the dawn re-entry survey a single common pipistrelle was observed swarming and entering Tree T4. Further common pipistrelles were observed circling this tree during the survey but did not enter the tree. Foraging common pipistrelles and noctules were observed during the survey around the trees.

6.4 SITE EVALUATION AND ASSESSMENT OF POTENTIAL IMPACTS

6.4.1 Buildings

Following the suite of survey work undertaken on site it can be confirmed that Section 5 of the farm complex contains a common pipistrelle roost used by small numbers of pipistrelles. Sections 3, 6 and 7 of the farm complex were found to contain evidence of bat activity (droppings and feeding remains), although no roosts were confirmed in these locations during the dusk emergence and dawn re-entry surveys. The scattered droppings may be associated with daytime roosts but may also be a result of foraging and exploratory visits. Most droppings did not appear recently deposited, although two more recent droppings resembling those of pipistrelle were identified in Section 6, and a single fresh dropping resembling that of brown long-eared bat was identified in Section 7. Foraging activity by low numbers of common pipistrelles was recorded throughout both dusk surveys around the farm complex courtyard. Taking into account the results of both the Preliminary Bat Roost Assessment and the dusk and dawn surveys, it is considered likely that low numbers of common pipistrelles use the farm complex as a day roost, with roosting locations moving between sections of the building.

The current site plans require that all buildings will be demolished, which has the potential to result in the damage, destruction or blocking of access to the confirmed roost in Section 5, or disturb bats within this roost. Furthermore, as all sections of the farm complex are interconnected it is considered likely that any uncontrolled building demolition has the potential to disturb the identified bat roost in Section 5. In addition, whilst no confirmed roosts were identified within other sections of the farm complex during the dusk emergence or dawn re-entry surveys, evidence of bat activity (scattered droppings and feeding remains) has been identified and it is considered that bats could roost in these sections on an occasional basis. A Natural England Licence will therefore be required to undertake any work that would result in harm to bats or loss of a bat roost. A recommendation is made in Chapter 7.

6.4.2 Trees

A common pipistrelle roost has been identified in Tree T4. The most recent site plans include the retention of Trees T3 and T4 and the field boundary in which they are located. There is potential for the identified roost in Tree T4 and roosts in other high and moderate potential trees to be disturbed by inappropriate lighting or other construction impacts such as noise, fumes, vibrations and accidental damage. It is anticipated that impacts can be readily avoided through the implementation of an appropriate lighting scheme and other protection measures. As such, recommendations have been made to avoid these impacts on known and unidentified roosts in trees.

The only trees now proposed for removal have low or negligible bat roost potential. Trees T1 and T6 have low potential and Trees T5 and T7 have negligible potential. Trees T1 and T6 are mature trees with the potential to have roosting features that have not been identified due to the presence of a leafy canopy at the time of the preliminary roost assessment. As such, precautionary recommendations are provided in relation to the further assessment and felling of these trees.

The current site proposals show that the boundaries that include trees of moderate and high bat potential have buffers of semi-natural planting proposed. If planted with appropriate wildlife attracting habitats and species, this would be a beneficial impact of the proposal as it would provide increased foraging habitat for bats on site. It is also vital that these trees and tree-lines remain unlit in the operational phase of the development so that roosts are preserved and flight lines are not disrupted. Recommendations have been made in relation to lighting and planting at the site.

7. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

R1 Farm Complex: Natural England Licence Application

As a confirmed bat roost has been identified in Section 5 of the farm complex, which is connected to other sections of the farm complex where evidence of possible further roosting activity (bat droppings) has been identified, no unlicensed work can be undertaken which will contravene the legislation outlined in Appendix 1.

Examples of works which will breach this legislation include:

- Roof removal;
- Noise, vibrations and storage of odorous and dangerous chemicals;
- Alterations to bat entrance/exit points;
- Investigations works in the roof as this can cause bats to abort their young/awake from hibernation and can alter the roof temperature/humidity; and,
- Works in the main body of the building;
- Changes to the current lighting regime;
- Uncontrolled demolition of sections in the farm complex connected to Section 5, where the confirmed roost was identified.

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

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

Dusk emergence and dawn re-entry survey data, in line with Bat Surveys: Good Practice Guidelines published by the Bat Conservation Trust (Collins, 2016), is required to inform the licence application. To ensure that the data submitted is current and appropriate for assessment by Natural England, surveys need to be carried out during the peak bat activity season closest to the start date of the proposed development. The peak bat activity season extends from May to August. An appropriate level of survey work has been undertaken within this study; however, should any delays occur in the planning process which results in a delay in the bat licence application beyond April 2022 the bat activity surveys may have to be updated.

R2 High and Moderate Bat Potential Trees: Retention and Protection

All trees with moderate or high potential to support roosting bats should be retained and protected during construction and in the long term. A Construction Ecological Management Plan (CEcMP) should be prepared that controls any work that might damage/disturb bat roosts within these trees, such as inappropriate noise, vibrations or lighting.

If impacts on potential roosting features are anticipated, additional surveys will be required to determine whether roosts are present. Trees T3 and T4 have already been subject to an appropriate level of survey to determine whether roosts are present, however should any delays occur in the planning process which results in a delay in the bat licence application beyond April 2022, the bat activity surveys may have to be updated. Should any work be required to Tree T4 that is likely to result in a breach of wildlife legislation, a development licence must be obtained from Natural England. The licence application process will include the submission of a method statement detailing the current status of bats on site and how the favourable conservation status of the bat population

will be maintained. Prior to a licence being issued, planning permission must be granted and relevant conditions relating to protected species and habitat issues must be discharged.

To inform the licence application at least three dusk emergence and/or dawn re-entry surveys must be undertaken during the bat activity season in line with Bat Surveys: Good Practice Guidelines published by the Bat Conservation Trust (Collins, 2016). The bat activity season extends from May to September. At least one of the surveys should be a dawn re-entry survey, and at least two of the surveys should be undertaken between May and August. These surveys need to be carried out during the activity season closest to the start date of the proposed development to ensure that the data obtained is current and appropriate for assessment by Natural England.

R3 Low Bat Roosting Potential Trees

Where trees identified with low bat roosting potential are to be felled or otherwise impacted by the proposal a precautionary approach is recommended due to the survey constraints in identifying potential roosting features in the upper canopies. It is recommended that these trees are subject to a further ground level assessment over winter, when potential roost features are less likely to be obscured by leaves. The results of this survey should inform requirements for further survey assessment or the implementation of precautionary measures during tree removal, such as 'soft felling' under ecological supervision i.e. where trees are felled in a manner where they can be checked for bat roosting features during the felling process. In the event that any bats or evidence of roosting bats is identified during tree felling, all works will cease, and the need for a licence from Natural England will be reassessed.

R4 Lighting

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

- Avoiding the installation of new lighting in proximity to key ecological features, such as hedgerows and woodland edges.
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.

R5 Habitat Enhancement for Foraging and Roosting Bats

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

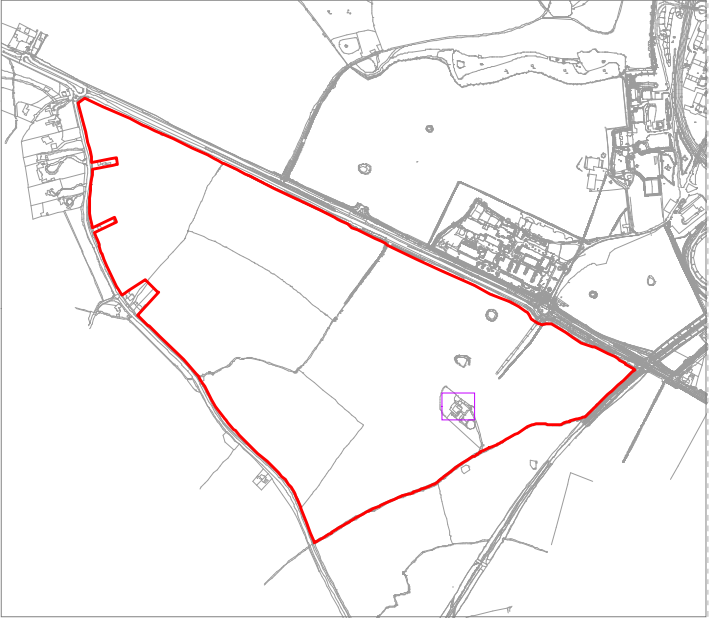
8. DRAWINGS

Drawing C154920-04-01 – Preliminary Bat Roost Assessment: Buildings

Drawing C154920-04-02 – Preliminary Bat Roost Assessment: Trees

Drawing C154920-04-03 – Bat Roost Location: Buildings

Drawing C154920-04-04 – Bat Roost Location: Trees



C154920-04-01

Legend

Site boundary

Section of building with low bat roosting potential

Section of building with moderate bat roosting potential

Section of building with high bat roosting potential

Bat droppings identified

Bat droppings with signs of brown long-eared bat

Project

MIRA SMS, Watling Street, Warwickshire

Drawing

Preliminary Roost Assessment

Client

ERI MTP Limited

Drawing Number

C154920-04-01

Revision

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Scale @ A3

1:250

Date

November 2021

Approved By

HP

Drawn By

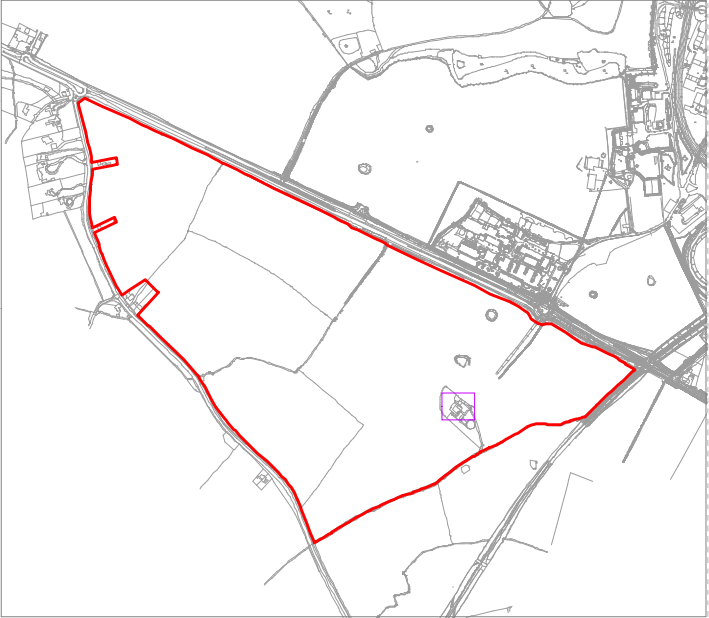
JR

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C154920-04-03

Legend

Site boundary

Building surveyed

Section of building with low bat roosting potential

Section of building with moderate bat roosting potential

Section of building with high bat roosting potential

Common pipistrelle day roost identified by emergence

Project

MIRA SMS, Watling Street, Warwickshire

Drawing

Preliminary Roost Assessment - Day Roost

Client

ERI MTP Limited

Drawing Number

C154920-04-03

Revision

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Scale @ A3

1:250

Date

November 2021

Approved By

HP

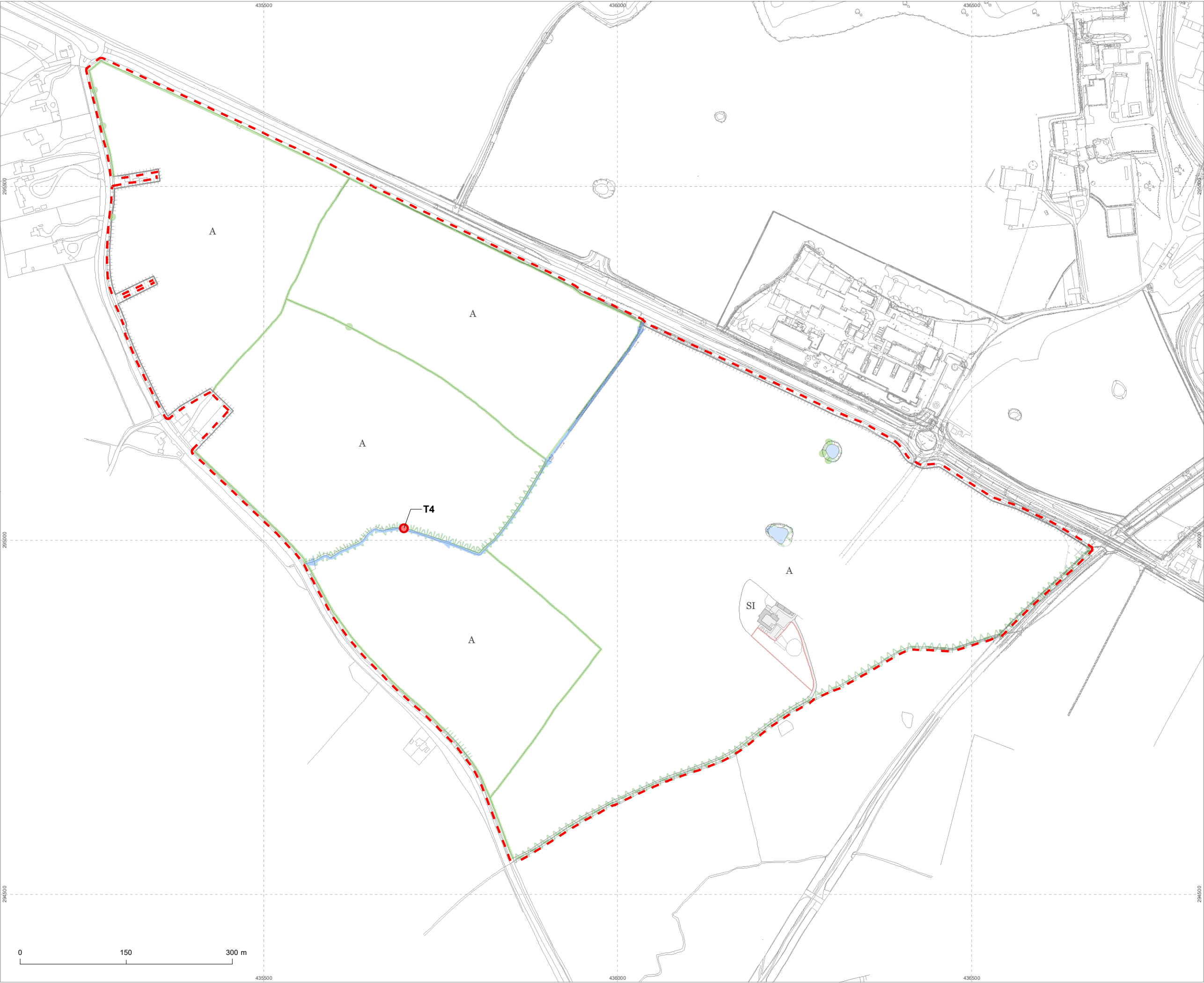
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C154920-04-04

Legend

Site boundary

Preliminary Roost

Tree with confirmed common pipistrelle day roost

Phase 1 Habitats:

Scattered tree

Fence

Running water

Species-poor intact hedgerow

Species-poor hedgerow with trees

Species-rich defunct hedgerow

Species-rich hedgerow with trees

Species-rich intact hedgerow

A

Arable

Building

Ephemeral / short perennial vegetation

Hardstanding

Other Habitat

SI

Poor semi-improved grassland

Dense scrub

Standing water

Project

MIRA SMS, Watling Street, Warwickshire

Drawing

Preliminary Roost Assessment of Trees - Day Roost

Client

ERI MTP Limited

Drawing Number

C154920-04-04

Revision

00

Scale @ A3

1:5,000

Date

November 2021

Approved By

HL

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9. PHOTOGRAPHS



Plate 8.1: Typical View Across Site



Plate 8.2: Typical Hedgerow and Verge



Plate 8.3: Field Boundary Closest to Farm



Plate 8.4: Farm Complex Viewed from North



Plate 8.5: Farm Complex Viewed from South



Plate 8.6: Section 1



Plate 8.7: Section 1

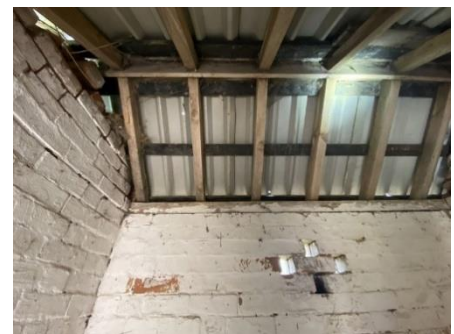


Plate 8.8: Section 1



Plate 8.9: Section 2



Plate 8.10: Section 2



Plate 8.11: Section 3



Plate 8.12: Section 3



Plate 8.13: Section 3.1



Plate 8.14: Section 3.4



Plate 8.15: Section 3



Plate 8.16: Section 3



Plate 8.17: Section 4



Plate 8.18: Section 4

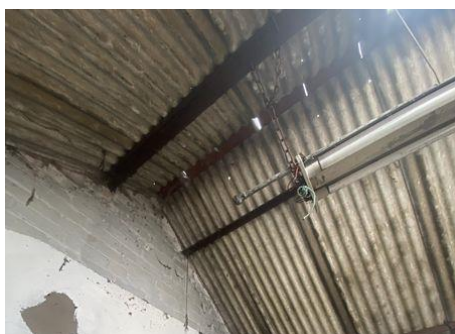


Plate 8.19: Section 4



Plate 8.20: Section 5



Plate 8.21: Section 5



Plate 8.22: Section 5



Plate 8.23: Section 6



Plate 8.24: Section 6



Plate 8.25: Section 6 with Lean-to



Plate 8.26: Section 6 Ground Floor



Plate 8.28: Section 6 First Floor



Plate 8.29: Section 7



Plate 8.30: Section 7 with Lean-to



Plate 8.31: Section 7



Plate 8.32: Section 8



Plate 8.33: Section 8



Plate 8.34: Section 8 Inside Lean-to



Plate 8.35: Section 9



Plate 8.36: Section 9



Plate 8.37: Section 3



Plate 8.38: Barn 1



Plate 8.39: Barn 1



Plate 8.40: Barn 1



Plate 8.41: Barn 1

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APPENDIX 1

LEGISLATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ECOLOGY

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

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

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