

**Coltsdene Solar Proposal**  
Bat results report

November 2025

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# 1 Introduction

1.1 BSG Ecology was commissioned by Renewable Energy Systems Ltd. (RES) in March 2024 to undertake bat activity surveys, preliminary roost assessments (PRA) of buildings and ground-level tree assessments (GLTA) to assess the potential of trees onsite to support roosting bats. The works were undertaken at proposed Coltsdene Farm, in Kibblesworth, centred on Ordnance Survey (OS) Grid Reference NZ232566 (the 'Site'), see **Figure 1**, Section 5.

1.2 This report provides the results of the surveys only, a full Environmental Statement Chapter will detail the significance of effects and subsequent impacts and mitigation as required.

## Site description

1.3 The Site covers an area of approximately 92.5 ha of predominantly arable land directly west of the village of Kibblesworth, Gateshead, approximately 1.3 km west of the A1 corridor.

1.4 Habitats within the Site consist predominantly of arable land with associated margins and boundary hedgerows. Pockets of modified grassland, scrub and woodland are also present. Notably, Coltspool Burn flows in an easterly direction through the north of the Site and Strandy Burn is located offsite to the north, both of which are tributaries of the River Team (a statutory main river).

1.5 Habitats adjacent to the Site are dominated by arable and pastoral land with the village of Kibblesworth to the east. Four local wildlife sites (LWS) are present onsite or directly adjacent. Other habitats in the locality include pockets of deciduous woodland, connected through hedgerow networks and riparian corridors, semi-improved grassland and open mosaic habitat on previously developed land to the east.

1.6 The Site is located within the Gateshead Greenbelt (Gateshead Local Policy CS19) and the northern extent is sited within the designated Wildlife Corridor (Gateshead Local Policy 37). The Bowes Railway Line LWS runs through the centre of the Site (Gateshead Local Plan 2010-2030). The Site is also located within the Impact Risk Zone (IRZ) for three Sites of Special Scientific Interest (SSSI) (MAGIC accessed December 2024).

## Description of project

1.7 It is understood that current proposals comprise the development of a 49.9 MW solar array and associated infrastructure, including access tracks, boundary fencing, inverters and a substation. At the time of writing, detailed plans are not available.

## Personnel

1.8 The following BSG personnel completed bat surveys onsite (full details of BSG staff experience can be found here: <https://bsg-ecology.com/people/>).

- Claire Dewson, Associate Director, MCIEEM<sup>1</sup>, Level 2, Bat licence number: 2022-11277-CLS-CLS
- Hannah Shone, Senior Ecologist, MCIEEM<sup>1</sup>
- Alex Permain, Senior Ecologist.
- Naomi Eckersley, Ecologist, ACIEEM<sup>2</sup>,
- Harry Glass, Ecologist,
- Jennifer Peacock, Ecologist.

1.9 In addition, the following trusted sub-contractors were utilised to assist on surveys:

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<sup>1</sup> Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM)

<sup>2</sup> Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM)

- Matthew Breadin, Derwent Valley Ecology, licence number: 2025-12739-CL18-BAT.
- Paul Dixon
- Alex Thompson
- Robert Permain

- 1.10 The sub-contractors have a range of bat survey experience with the majority having over 3-5 years' experience undertaking professional surveys.
- 1.11 Bat call analysis was undertaken by Jennifer Peacock and verified by Harry Glass. Both Harry and Jennifer have worked as professional ecologists since 2022 and have experience using sound analysis software and authoring bat reports for developments in arable settings. Harry has achieved Technician Level Grade B in the Certificate of Bat Acoustic Analysis course.
- 1.12 This report was prepared by Jennifer Peacock who has worked as a professional ecologist since 2022 and authored bat reports for projects in arable landscapes for two years.
- 1.13 The report has been reviewed by Claire Dewson. Claire has worked as a professional ecologist for over 20 years, and has provided ecological input and technical review to various impact assessment and protected species reports for renewable developments across the UK. Claire has worked with bats for over 20 years both as a roost visitor on behalf of Natural England and as a bat consultant.

## 2 Methods

### Desk study

- 2.1 Information on the presence of designated sites<sup>3</sup> and records of bat species in the vicinity of the Site, within the last 10 years, was provided by Environmental Records Information Centre North East (ERIC NE) in November 2024.
- 2.2 The desk study made use of publicly available online mapping and aerial photography resources to assess the landscape and ecological context of the Site, and to identify any designated sites of nature conservation interest including:
- The Multi-Agency Geographic Information for the Countryside (MAGIC) database (<http://www.magic.gov.uk/>) was used to identify statutory designated sites where the important feature is bats, and granted European Protected Species Mitigation (EPSM) licence applications<sup>4</sup> for bats within 2 km of the Site.
  - Base mapping and aerial images from the MAGIC website were used to identify suitable habitat for commuting, foraging, roosting and hibernating bats within the surrounding landscape to help inform an assessment of the potential for them to be present onsite or adjacent.

### Habitat suitability assessment

- 2.3 During the initial preliminary habitat survey undertaken in November 2024, a visual assessment of the Site and adjacent habitats was conducted to determine their potential to support foraging and commuting bats. In conjunction with the desk study, the Site was assigned a level of suitability (see **Table 1**) to support foraging and commuting bats and to inform further survey requirements in accordance with the Bat Conservation Trust (BCT) guidance (Collins, 2023).
- 2.4 Despite the dominance of large, open arable fields, the network of hedgerows, woodland, scrub and riparian corridors of Coltspool Burn and Strandy Burn provide good opportunities for commuting bats. Therefore, in accordance with the Bat Conservation Trust (BCT) guidance (Collins, 2023) the Site was given a level of 'high' suitability to support foraging and commuting bats. Refer to **Table 1** for suitability criteria for 'high' suitability, as per the guidance (Collins, 2023).

**Table 1: Guidelines for assessing the potential suitability of proposed site for bats**

Potential suitability	Potential flight-paths and foraging habitats
High	<p>Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flightpaths such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lines watercourses and grazed parkland.</p>

- 2.5 As recommended by the guidance (Collins, 2023), activity surveys for 'high' suitability will include three seasonal night-time bat walkovers (NBW); spring (April to May), summer (June to August) and autumn (September to October), as well as monthly static detector surveys for a minimum of five consecutive nights between April and October during suitable weather conditions.

### Night-time bat walkovers

- 2.6 Three seasonal night-time bat walkover (NBW) surveys were completed in accordance with industry standard guidance (Collins 2023). Due to the size of the Site, it was split into three transect routes

<sup>3</sup> Statutory Sites: European Sites (SAC/SPA/Ramsar Sites), SSSIs, NNRs and LNRs; Non-statutory Sites: Local Wildlife Sites / County Wildlife Sites (and equivalent designations) and Ancient Woodland sites.

<sup>4</sup> This data was most recently updated 13 January 2022, but provides contextual information.

(all of which were walked simultaneously on the same evening each season). NBW routes are shown in **Figures 2 a-c**.

- 2.7 At the start of each NBW surveyors were positioned at a 'static' point. The point was located near to suitable flight-paths, close to potential roosting habitat (such as the woodland blocks) or near to possible habitat connectivity to the wider landscape. Each survey started at sunset and surveyors remained in position for at least 30 minutes (and up to 60 minutes depending on bat activity levels), recording behaviour of any bats observed, flight direction, species and numbers of bats.
- 2.8 Following the initial observation stage of the NBW, surveyors walked a 'transect' at a slow consistent pace for 1.5 to 2.5 hours after sunset, along pre-determined routes to continue to record bat activity levels. The pre-determined route was designed to capture suitable foraging and commuting habitat, including watercourses, scattered scrub, hedgerows and adjacent woodland habitats.
- 2.9 The pre-determined route included ten point counts, where the surveyors paused for several minutes at each location to record any activity. The direction of the route alternated between clockwise and anticlockwise between surveys where possible to improve temporal coverage of the Site. The pre-determined transect route and stopping points can be found in **Figures 2 a-c**.
- 2.10 Surveyors were equipped with full spectrum Anabat Scout handheld bat detectors to aid with in-field and post-survey sonogram analysis for bat species identification. Where bat activity was recorded, the time and species were noted on a map. In addition, the flight direction and behaviour of the bat(s) was also recorded where this could be determined (e.g. foraging, commuting or social calling).
- 2.11 Survey conditions are summarised in **Appendix 1**, including dates, surveyors present and weather conditions.

#### **Static detector survey**

- 2.12 Static activity data is useful to understand the bat species assemblage onsite, seasonal trends in activity, monitoring of locations contemporaneously (e.g. in the same weather conditions), and whether roosts may be present nearby (based on times bat passes were recorded compared to typical emergence times for the species). Static activity data cannot, however, be used to understand bat behaviours and flight-paths, nor to accurately identify the presence and locations of bat roosts on its own. Static data is instead a snapshot of bat activity on the Site at a given location and period.
- 2.13 A total of six Wildlife Acoustics Song Meter 4 ("SM4") static bat detectors were deployed at each location. The detectors were left *in situ* for a minimum period of five consecutive nights during suitable weather conditions to record bat activity per month. The locations of the static detectors are shown on **Figure 1**.
- 2.14 The bat detectors were located so that they sampled habitats across the whole Site, including habitats where bat activity was most likely to be focussed based on documented bat ecology and behaviour (i.e., next to features of higher value such as hedgerows and woodland edge).
- 2.15 For each deployment period, the detector was set to record from 30 minutes before sunset to 30 minutes after sunrise (see consideration of potential limitations for more information). The detectors were configured to record above the level of ambient noise, such as from wind or rain, using an adaptive trigger set to 6 decibels (dB). They were set to define a bat pass as a call note of >2 milliseconds (ms) separated from another by more than one second. SM4s had an external microphone which was connected via a cable to the logger and attached to a pole or tree approximately 2.5 - 3 m above ground level.
- 2.16 Deployment dates are summarised in **Appendix 1**.

#### **Bat call identification**

- 2.17 Bat call data was run through Wildlife Acoustics Kaleidoscope Pro auto-identification software (version 5) using the UK and Europe classifier and was then further analysed using Analook software (Version 4.5z; Titley Scientific, 2023) to allow identification of the bat species present.

- 2.18 Due to the unreliability of auto-analysis software, all bat calls generated by Kaleidoscope Pro, as well as 'Noise' and 'NoID' files, are manually verified by an ecologist experienced in sonogram analysis. Unexpected, uncommon or rare species are subject to a second manual verification by another experienced ecologist. Files are reassigned a species or genus label accordingly, as a consequence of the verification process.
- 2.19 Where possible, bat calls were identified to species level. However, species of the genus *Myotis* were grouped together as their calls are similar in structure and have overlapping call parameters, making audio species identification problematic (Russ, 2012). Bat calls that could not be identified to species or genus level were not used in the analysis.
- 2.20 For *Pipistrellus* species the following criteria based on measurements of peak frequency were used to classify calls:
- Common pipistrelle *Pipistrellus pipistrellus*  $\geq 42$  and  $<49$ KHz
  - Soprano pipistrelle *Pipistrellus pygmaeus*  $\geq 51$ KHz
  - Nathusius pipistrelle *Pipistrellus nathusii*  $<39$ KHz
  - Common / soprano pipistrelle  $\geq 49$  and  $<51$ KHz
  - Common / Nathusius pipistrelle  $\geq 39$  and  $<42$ KHz
- 2.21 In addition, '*Myotis* species' is used for calls which cannot confidently be identified to species level due to the overlap in call characteristics between species.
- 2.22 The data was exported into a spreadsheet to interpret the recordings. The timing of passes after sunset and before sunrise was calculated to interpret any patterns in bat activity across the night-time period (see **Appendix 2**). The two hours after sunset and the two hours before sunrise were separated into 20-minute time classes, while the hours within the night-time period were combined into one time class called 'Middle of the night', which could be 6-8 h depending on the length of the night. Calls recorded before sunset are considered, but not factored into activity calculations, due to differences in the length of time recorded before sunset between detectors and seasons (see consideration of potential limitations).
- 2.23 The data was analysed to determine the total number of bat registrations recorded and also the pass rate (i.e. the average number of bat registrations recorded per hour of night). It is challenging to assess actual bat numbers from the information collected by static bat detectors. Where multiple bat calls are recorded these could, for example, either have been produced by a single bat repeatedly flying back and forth past the detector or by multiple bats, each flying past on a single occasion. The data obtained therefore provides a relative measure of bat activity at different locations and at different times, rather than a measure of population size.

#### **Ground-level tree assessment (GLTA)**

- 2.24 In accordance with the Bat Conservation Trust (BCT) guidance (Collins, 2023), a ground level tree assessment (GLTA) for roosting bats was undertaken of trees on Site and within a 50 m search buffer of the Site (where possible). The GLTA was undertaken on 08 and 09 May 2025 during suitable weather conditions: dry, with average temperatures of 15°C, low winds, and good visibility.
- 2.25 A detailed inspection of the trees from the ground was undertaken to compile information about the trees, potential roosting features (PRFs) (or lack of) and any evidence of bats. Evidence of bats included odour, staining below the entrance or inside, smoothing of the entrance and audible squeaking at dusk or in warm weather, where the only conclusive sign of a bat roost is actual bats or their droppings. The latter, where found, should be collected, dried and sent off for DNA analysis unless the identification of roosting bats has been established reliably by other means.
- 2.26 Information collected about the tree included tree species, approximate tree height and diameter at breast height (DBH), and whether the tree is alive or dead. Information collected about the PRFs included type of PRF, location and approximate height of PRF, as well as the direction of which the PRF faces.

- 2.27 The trees and/ or PRFs were categorised based on their suitability to support roosting bat/s and to inform the need for further detailed PRF inspection and/ or presence/likely absence surveys. Refer to **Table 3** for tree roost categorisation.

**Table 3: Tree roost categorisation**

Categorisation	Details
PRF - None	Tree displays no features suitable for roosting bats.
PRF - I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF - M	PRF is suitable for multiple bats and therefore may be used by a maternity colony.

- 2.28 The existing arboricultural assessment was used to assist with scoping and the identification of trees with roosting potential. Trees were given an identification number consistent with their tree number in Appendix A of the arboricultural report (RammSanderson Ltd., 2025), and the location was georeferenced. The locations of the trees are shown in **Figure 3, Section 5**.

#### **Building preliminary roost assessments (PRA)**

- 2.29 The PRA was undertaken in accordance with best practice guidance provided by Bat Conservation Trust (Collins, 2023). The weather conditions were dry and sunny, with a temperature of 17°C and a light breeze (3 mph).
- 2.30 The PRA survey comprised an external inspection of all visible areas of the buildings, taking into account industry guidance (Collins, 2023), with particular attention paid to, eaves, loft and roof features, i.e., features that are often used by roosting bats if they are accessible. Additionally, an internal inspection was undertaken where possible to search for evidence of bats within roof voids, as well as their potential to support roosting bats if accessible. The external and internal inspection was aided by the use of close-focusing binoculars and a high-powered torch. Any potential roosting features (PRFs) and potential access points suitable for bats were identified and noted. The gathered information was used to assign an overall level of roosting suitability for bats, per **Table 4**.

**Table 4: Building roost categorisation**

Categorisation	Details
None	Structure displays no features suitable for roosting bats at any time of year.
Negligible	Structure displays no obvious features likely to be used by roosting bats, however, some uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	Structure displays one or more potential feature that could be used by individual bats opportunistically, but not suitable for larger numbers of bats (e.g. a maternity colony).
Medium	Structure displays one or more features that could be used by bats but is unlikely to support a roost of high conservation status, such as a maternity roost or large hibernation roost.
High	A structure with one or more features that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially longer periods of time due to their size, shelter, conditions and surrounding habitat, with potential to support roosts of high conservation status.

## Consideration of potential limitations

### *Night-time bat walkovers*

- 2.31 The spring NBW was conducted on June 3<sup>rd</sup> 2025, three days after the end of the official spring survey window. This was considered appropriate due to the cold weather conditions (with sunset temperatures below 10°C) and precipitation in the locality prior to this date. The survey was undertaken at the first opportunity when conditions became favourable and in line with guidance (Collins 2023). As such, this is not considered to be a significant limitation to the results.
- 2.32 Weather conditions on Site varied during the NBW surveys due to topography and elevation; generally the western areas of the Site were more exposed to higher winds than the north and eastern areas. Occasionally, winds exceeded speeds that bats would typically be flying. This is not considered to be a significant limitation as activity (or lack of) observed in these areas is considered to be typical given the increased exposure. This is supported by rationale presented in relation to weather conditions on NBW surveys in Collins (2023).

### *Static detector survey*

- 2.33 Detector 1 failed during the May deployment and as such no data was gathered in this location for this period. This is not considered to be a significant constraint to the data set or analysis as the other detectors and periods successfully recorded, and the analysis method standardises the data set into bat passes (P) per hour (P/h), thereby accounting for the disparity in recording effort.
- 2.34 Due to an error in the static detector GPS, several detectors started and ended recording between five and ten minutes later than intended during deployments in July, September and October. These are detailed in **Appendix 1**. At these times and locations, there is a possibility that bats that emerged more than 20 minutes before sunset were missed. This is not considered to be a significant constraint to the data set or time code analysis as the detectors were in operation for no fewer than 20 minutes before sunset which, according to Andrews and Pearson (2022) captures the full range of typical emergence time ranges of all UK species. Exceptionally early emerging bats may have been missed but it is considered that these are extreme outliers that would account for no more than a small number of individuals.

### *Bat call analysis*

- 2.35 There are no significant limitations to the bat data analysis.

### *GLTA*

- 2.36 There are no significant limitations associated with the GLTA.

### *PRA*

- 2.37 Two of the barns, building 2 and building 3, could only be observed externally due to the presence of asbestos concrete within the roof. Internal access to the farmhouse, building 9, was not granted. No internal assessment was conducted on these buildings, which were categorised on a precautionary basis using visible external features only. This limitation will be addressed if necessary, via further survey (such as dusk emergence surveys) should it be deemed, that proposals will impact potential bat roosts that may be present in the buildings.

### 3 Results and Evaluation

#### Desk study

- 3.1 ERIC NE returned 214 records for bat species within 2 km of the Site, including 78 records of common pipistrelle *Pipistrellus pipistrellus*, 39 records of soprano pipistrelle *Pipistrellus pygmaeus*, 15 records of noctule *Nyctalus noctula*, one record of a whiskered bat *Myotis mystacinus*, two records of Brandt's bat *Myotis brandtii*, one record of a Nathusius' pipistrelle *Pipistrellus nathusii*, three records of brown long-eared bat *Plecotus auritus*, 17 records of unidentified *Myotis* species, one record of an unidentified *Nyctalus* species, 30 records of unidentified *Pipistrellus* species, and 22 records of unidentified bat species. Of the 214 records, 26 relate to roosts within 2 km of the Site.
- 3.2 The closest records to Site are three overlapping records of soprano pipistrelle and noctule foraging at Bowes valley Nature Reserve immediately east of Site, dated 2010.
- 3.3 MAGIC returned two granted EPS licences for bats within 2 km of the Site:
- 2015-16433-EPS-BDX relating to the destruction of a breeding site for common pipistrelle at Ouston housing estate, dated October 2015 and located 1.3 km south of the Site.
  - 2015-17275-EPS-BDX relating to the destruction of a breeding site for common pipistrelle at Ouston housing estate, dated April 2016 and located 1.3 km south of the Site.

#### Designated sites

- 3.4 None of the statutory or non-statutory designated sites identified by the desk study cite bats as a reason for designation.

#### Field Surveys

##### Night-time bat walkovers

- 3.5 Results from the NBWs are described below and shown on **Figures 2 a-c**. Walkover routes are numbered 1 to 3 and discussed in turn.

##### Spring

- 3.6 NBW route 1 observed two common pipistrelles commuting out of the woodland near Colstpool Burn at the northern end of Site during the initial static observation period, between 33 and 37 minutes after sunset. The bats were observed commuting west along the woodland edge. Common pipistrelle preferentially roost in crevices in buildings; the closest building is located approximately 0.5 km away. Based on the timing of the observation, it is possible that the bats emerged from one of these buildings around their typical emergence time and commuted to Site. Low numbers of common pipistrelle activity was observed on the remainder of the walkover, limited to individual bats commuting along the hedgerows and treelines. No other species were recorded.
- 3.7 NBW route 2 began observing tree line and hedgerow located centrally near stopping point 9. No activity was observed within 30 minutes of sunset, prompting surveyors to move on in a clockwise direction. The remainder of the walkover recorded individual common pipistrelle foraging activity along the hedgerow and woodland edge habitats. One soprano pipistrelle was recorded foraging near the plantation woodland in the eastern area of Site (near stopping point 10). No other species were recorded.
- 3.8 NBW route 3 began observing trees T48-A2 and T49-B2 (see **Figure 3** and **Table 7** of GLTA results) and the surrounding hedgerow. No activity was observed within 30 minutes of sunset, prompting surveyors to move on. As surveyors were leaving, a brown long-eared bat was recorded commuting along the treeline near the static observation point, approximately 40 minutes after sunset. This is before the mean emergence time for the species (Andrews and Pearson, 2022) suggesting a roost is nearby in the immediate area. The species preferentially roosts in buildings with internal voids (such as barns), and several are present in the immediate area to the north east. The remainder of

the walkover recorded frequent noctule activity commuting and foraging along the hedgerows in the western areas of Site north of Kibblesworth Bank. Small numbers of foraging common pipistrelle were also recorded. One soprano pipistrelle and one brown long eared bat were recorded (but not seen) commuting near stopping point two.

### Summer

- 3.9 NBW route 1 observed soprano pipistrelles foraging and commuting activity along woodland edge habitat near Colstpool Burn at the northern end of Site during the initial static observation period, between 23 and 30 minutes after sunset. Although no emergences were directly observed, the bats were observed within their typical emergence period per Andrews and Pearson (2022). Low numbers of common and soprano pipistrelle activity was observed on the remainder of the walkover, limited to individual bats commuting and foraging along the northern treeline only. No other species were recorded.
- 3.10 NBW route 2 began observing the off-Site farm buildings surveyed during the preliminary roost assessment survey (**see Figure 4**). No activity was observed within 30 minutes of sunset and surveyors moved on in a counter clockwise direction. The remainder of the walkover recorded individual common pipistrelle foraging and commuting activity along the hedgerow and woodland edge habitat, similar to the spring survey. No other species were recorded.
- 3.11 NBW route 3 began observing trees T48-A2 and T49-B2 and the surrounding hedgerow. Again, no activity was recorded within 30 minutes of sunset. The remainder of the survey recorded reduced levels of noctule foraging and commuting behaviour in the western areas of Site compared to the spring walkover. Common and soprano foraging and commuting behaviour was observed at the central-western treelines and hedgerows near stopping point 3, but activity ceased for the remainder of the survey (approximately 80 minutes after sunset).

### Autumn

- 3.12 NBW route 1 observed noctule commuting activity, recorded flying south out of the northern woodland near stopping point 3, 23 minutes after sunset. Noctule emergence time is typically between 7 and 11 minutes after sunset (Andrews and Pearson, 2022), it is therefore considered that this bat emerged from elsewhere in the landscape and commuted to Site. Common and soprano pipistrelle foraging activity was also observed along woodland edge habitat during the initial static observation period, between 21 and 30 minutes after sunset. Although no emergences were directly observed, the bats were observed within their typical emergence period per Andrews and Pearson (2022). Low numbers of common and soprano pipistrelle activity was observed on the remainder of the walkover, limited to individual bats commuting and foraging along the southern hedgerows only. No other species were recorded.
- 3.13 NBW route 2 began observing the off-Site farm buildings surveyed during the preliminary roost assessment survey (**see Figure 4**). No activity was observed within 30 minutes of sunset and surveyors moved on in a counter clockwise direction. The remainder of the walkover recorded individual common pipistrelle foraging and commuting activity along the hedgerow and woodland edge habitat, similar to the previous surveys. Soprano pipistrelle was recorded foraging at the central plantation woodland (south of stopping point 9), and one noctule pass was recorded near the western plantation woodland (near stopping point 3). No other species were recorded.
- 3.14 NBW route 3 began observing trees T48-A2 and T49-B2 and the surrounding hedgerow. Again, no activity was recorded within 30 minutes of sunset. The remainder of the survey recorded common and soprano foraging and commuting behaviour at the central-western treelines and hedgerows near stopping point 3. Bat activity ceased approximately 85 minutes after sunset, when a single noctule pass was recorded at stopping point 6.

### Summary of night-time bat walkover surveys

- 3.15 Overall low numbers of bats were recorded on all surveys, limited to common pipistrelle, soprano pipistrelle, noctule and brown long-eared bat.

- 3.16 Observations on Route 1 indicated the potential presence of nearby common and soprano pipistrelle roosts. These species preferentially roost in buildings, of which there are several nearby to the north-east and north-west: it is possible that these bats are roosting there. . Bat activity along Route 2 was well spread out along its length but limited to predominantly individual common pipistrelle foraging and commuting along treelines. Activity observed on Route 3 was concentrated to the central tree lines and hedgerows; including several noctule and one brown long-eared bat passe observed during the spring survey, however, this activity was reduced (or in the case of brown long-eared, absent) on the subsequent surveys and other routes. A pronounced lack of bat activity was recorded in the north-western areas of the Site along Route 3, possibly due to the increased exposure to wind discouraging activity.

#### **Static bat detector survey**

- 3.17 The static detector survey recorded at least seven species of bats. Confirmed species / groups include the following:
- Common pipistrelle
  - Soprano pipistrelle
  - Nathusius' pipistrelle
  - Myotis sp.
  - Noctule
  - Leisler's bat
  - Brown long-eared bat

#### **Activity (P/h)**

- 3.18 Results of the static detectors are described below, and the locations are shown on **Figure 1**.
- 3.19 **Tables 5 and 6** set out the total numbers of bat passes and activity levels per detector location and bat species during the monthly monitoring periods.

**Table 5: Number of bat passes (P) and bat activity (P/h) at each detector location (all months).**

<b>Detector location</b>	<b>Habitat</b>	<b>Number of bat passes (P)</b>	<b>Bat activity (P/h)</b>
Location 1	Hedgerow on the edge of an arable field.	5,765	20.08
Location 2	An ash tree within a hedgerow located to the east of the Site.	10,531	32.20
Location 3	An oak tree within a hedgerow located to the east of the Site.	9,561	29.60
Location 4	Hedgerow located on the edge of a parcel of woodland located to the south of the Site.	5,691	17.62
Location 5	Fence on the edge of an arable field in the middle of the Site.	9,642	29.85
Location 6	Oak tree situated on a hedgerow at the edge of an arable field to the south west of the Site.	13,583	41.41

**Table 6: Bat activity (P/h) by species per month (all locations).**

Species	April (P/h)	May (P/h)	June (P/h)	July (P/h)	August (P/h)	September (P/h)	October (P/h)
Common pipistrelle	9.9	99.2	38.5	38.0	26.4	1.8	3.1
Soprano pipistrelle	0.7	3.9	4.4	4.9	6.0	0.2	0.5
Nathusius' pipistrelle	<0.1	0	0	0	0	0	0
<i>Myotis</i> sp.	0.1	0.3	1.6	0.9	0.4	<0.1	1.0
Noctule	<0.1	0.3	0.3	2.4	2.2	<0.1	<0.1
Leisler's bat	0	<0.1	0	0	<0.1	0	0
Brown long-eared bat	0	<0.1	<0.1	<0.1	0.1	0	<0.1

### Bat species breakdown

#### Common pipistrelle

- 3.20 Common pipistrelle activity comprised 87% of all bat calls recorded (47,536 P) and the species was recorded in similar levels at all locations. Activity was low in April (9.9 P/h), which is when bats are foraging following hibernation; activity levels suggest the Site is not an important resource for bats at this time of year. Activity peaked in May (99.2 P/h) which is when female bats gather to form maternity colonies and forage extensively to maintain their energy whilst gestating. Activity fell in the summer months but was still relatively high, suggesting females utilise the Site for foraging when nursing. Activity fell dramatically in autumn, when maternity colonies disperse and bats search for hibernation resource, suggesting the Site is not important for common pipistrelles in this regard.

#### Soprano pipistrelle

- 3.21 Low levels of soprano pipistrelle activity were recorded on Site overall. April activity was very low (0.7 P/h), suggesting the Site is not used extensively by bats emerging from hibernation. Activity steadily rose over the summer and peaked in August (6.0 P/h) when maternity colonies disperse, however given the low level of activity recorded overall the Site is not considered to be a significant resource for soprano pipistrelle maternity roosts. Activity then fell dramatically in autumn, suggesting that the bats using the Site have dispersed to elsewhere to search for autumn foraging and winter hibernation resource.

#### Nathusius' pipistrelle

- 3.22 Only two Nathusius' pipistrelle calls were recorded across the entire monitoring period, one at Location 2 in April and another at Location 6 in July. They were recorded well after the mean emergence time for the species noted in Andrews and Pearson (2022). It is considered that these bats are dispersing through the Site only and the Site does not provide a significant resource for the species.

#### *Myotis* species

- 3.23 Low levels of *Myotis* bat activity were recorded on Site. The species group was poorly represented at Locations 2 and 4, and highest at Location 1; the presence of a nearby watercourse at Location 1 suggests these may be mostly Daubenton's bat *Myotis daubentonii*. Activity had a bimodal peak in June (1.6 P/h) and October (1.0 P/h) when bats are nursing and dispersing for hibernation respectively, however the activity level was not high enough to suggest that the Site is important for these species.

#### Noctule

- 3.24 Low levels of noctule activity were recorded on Site overall. The species was mostly recorded at Locations 1 – 3, proximal to nearby Local Nature Reserves with mature trees present that could

provide suitable roosting resource within commuting distance. This is reflected in time code analysis at these locations (see below and Appendix 2). Activity was very low in all periods except July and August, when young bats are dispersing from maternity colonies.

#### **Leisler's bat**

- 3.25 Four Leisler's bat calls were recorded, only at Location 3 and 5 in August and May, respectively. The August calls were recorded during the peak emergence times noted for the species (Andrews and Pearson, 2022). However, this behaviour was not recorded at any other location or period and is therefore considered to be incidental.

#### **Brown long-eared bat**

- 3.26 Recorded brown long-eared bat activity was very low, however this may be due to the characteristics of their calls making the species difficult to record, rather than a lack of bats. Calls were recorded in all locations, and in most periods except April and September. The calls were recorded in time codes 6 – 9 (100 minutes after sunset to 80 minutes before sunrise) which is well after typical emergence times for the species suggesting the bats were commuting to Site. This is expected as none of the statics were located near potential roosting resource for this species.

#### **Time code analysis**

- 3.27 **Appendix 2** details bat passes per species recorded at defined time periods throughout the night and presents a summary of the timing of bat passes through the survey nights; this information can be used to determine whether certain species recorded onsite have been recorded within typical emergence times for the species, as per Andrews and Pearson (2022).

#### **Location 1**

- 3.28 Common pipistrelle and, to a lesser extent, soprano pipistrelle and noctule activity was highest between time codes 2 and 6 (20 - 120 minutes after sunset), suggesting the location is used by these species for foraging continuously after emergence before bats disperse through the night. Common pipistrelle activity picked up briefly before sunrise (time code 9 and 10, 100 – 60 minutes before sunrise) but remained low for all other species.
- 3.29 98 bat calls were recorded during time codes at or before typical emergence times, which indicates that a small roosting resource may be present nearby for noctule, common pipistrelle, and soprano pipistrelle.

#### **Location 2**

- 3.30 Common pipistrelle activity displayed bimodal peaks of activity around time codes 2 and 3 (20 – 60 minutes after sunset), and time codes 11 and 12 (60 - 20 minutes before sunrise), suggesting the location is used by common pipistrelle for foraging shortly after emergence and shortly prior to their return to roost. Bat activity for all other species was comparatively low (<2.0 P/h across all time codes).
- 3.31 202 bat calls were recorded during time codes at or before typical emergence times, which indicates that small roosting resource may be present nearby for noctule, common pipistrelle, and soprano pipistrelle.

#### **Location 3**

- 3.32 Common pipistrelle displayed bimodal peaks of activity around time codes 2 and 3 (20 – 60 minutes after sunset), and at time codes 8, 9 and 10 (120 – 60 minutes before sunrise), before sharply declining. Soprano pipistrelle activity peaked at time code 2 and 3, before declining for the remainder of the night. Bat activity for all other species was comparatively very low (<1.0 P/h across all time codes).

- 3.33 239 bat calls were recorded during time codes at or before typical emergence times, which indicates that small roosting resource may be present nearby for noctule, common pipistrelle, soprano pipistrelle, and *Myotis* sp.

#### Location 4

- 3.34 Common pipistrelle activity peaked at time code 4 (60 – 80 minutes after sunset) suggesting the majority of bats using Location 4 commute there, rather than roost nearby. Bat activity for all other species was comparatively very low (<1.0 P/h across all time codes).
- 3.35 56 bat calls were recorded during time codes at or before typical emergence times, which indicates that small roosting resource may be present nearby for noctule and common pipistrelle.

#### Location 5

- 3.36 Common pipistrelle activity peaked at time codes 3 and 4 (40 – 80 minutes after sunset) suggesting the majority of bats using Location 5 commute there, rather than roost nearby. Bat activity for all other species was comparatively very low (<1.0 P/h across all time codes).
- 3.37 16 bat calls were recorded during time codes at or before typical emergence times, which indicates that roosting resource nearby is limited to opportunistic roosts used occasionally by noctule, common pipistrelle, and soprano pipistrelle.

#### Location 6

- 3.38 Common pipistrelle activity peaked at time codes 5 and 6 (80 – 120 minutes after sunset) suggesting the majority of bats using Location 6 commute there, rather than roost nearby. Common pipistrelle activity remained high throughout the night, slowly tailing off before sunrise. Soprano pipistrelle activity peaked during time code 3 (40 – 60 minutes after sunset) before slowly tailing off for the rest of the night. Bat activity for all other species was comparatively very low (<1.0 P/h across all time codes).



#### **Ground-level tree assessment (GLTA)**




- 3.39 Detailed results of the GLTA survey are presented in **Appendix 3** and shown in **Figure 3**.
- 3.40 Seventy-six trees were inspected in detail across the Site, of which 32 were assessed as PRF-I and four were assessed as PRF-M. The remainder were assessed as having no potential to support roosting bats.
- 3.41 Bat roosting suitability were predominantly found in the individual mature trees within the hedgerows in the southern and western areas of Site (see **Figure 3**). Woodland on or adjacent the Site, such as the lines of trees flanking the public footpath or the plantation woodland in the western areas of Site, were unsuitable for roosting bats as the trees were not of sufficient age.
- 3.42 Four trees were assessed as having potential to support maternity colonies (PRF-M): one in a small stand of trees to the north-west of the proposed drilling route, two in the southernmost field boundary on Site, and a fourth in the north-eastern most area of Site adjacent the watercourse.


**Preliminary roost assessment (PRA) - buildings**


- 3.43 All buildings onsite or directly adjacent were subject to a PRA. Building locations are shown on **Figure 4**. A total of nine buildings were surveyed.
- 3.44 No bats or evidence of roosting bats was identified during the PRA. PRFs recorded during the survey included slipped and lifted roof tiles, gaps in lead flashing and access points into roof voids. Further details of the PRFs and potential access points can be found in **Table 7**.



**Table 7: PRF and potential access points identified during the PRA**

Building/ PRF ID	Notes	Bat suitability	Location of PRF/ access
1	<p>The building was built in 1990's and is of breeze block and corrugated metal construction with a corrugated sheet plastic roof. Although crevices were present (such as behind the corrugated sheets) the structure will vary greatly in temperature throughout the day and is therefore considered to present negligible roosting resource for bats.</p> <p>It could be used by bats for poor weather foraging.</p> <p>No droppings were found during the survey.</p> <p>A pigeon nest was identified and in use and was located to the west of the building.</p>	Negligible	
2a	<p>Built in 1970's, and is of breeze block and corrugated concrete construction, with a plastic sheet roof. Gaps were observed between the corrugated boards and the flashing along the roof, however the building is likely to vary in temperature greatly throughout the day due to its construction, and is therefore assessed as providing negligible roosting opportunity for bats.</p> <p>No droppings were found during the survey.</p>	Negligible	

Building/ PRF ID	Notes	Bat suitability	Location of PRF/ access
	<p>A storage breeze block add-on located at the back of the building contained a large gap to its roof. The concrete asbestos wasn't in great condition and was cracked, providing some potential roosting opportunities into the main structure, however the building is small and is likely to vary in temperature reducing its suitability for bats. Internal access wasn't granted.</p> <p>No droppings were found during the survey.</p>		
2b	<p>The building was of breeze block, wooden board and concrete tile construction, with a corrugated sheet plastic roof. Wooden slats were used on one side; the other was constructed of concrete tiles.</p> <p>The building was negligible for roosting bats due to its open side and the construction materials used, which would vary the temperature of the structure throughout the day. but the building could be used for poor weather foraging as it remains open all year round.</p> <p>No droppings were found during the survey.</p>	Negligible	
3	<p>The building was constructed in the same way as buildings 2a and 2b, and is also open sided: it is therefore assessed as negligible due to the high amount of temperature variability. The building could be used for poor weather foraging.</p> <p>No droppings were found during the survey.</p>	Negligible	

Building/ PRF ID	Notes	Bat suitability	Location of PRF/ access
<p>4 PRF 3</p>	<p>The building is a traditional barn possibly from the 18<sup>th</sup> – 19<sup>th</sup> century. The building was built of quarried and dressed stone, with timber framing and slate tiled roof. The construction materials mean the building is unlikely to vary in temperature significantly throughout the day.</p> <p>Some of the roof tiles had slipped and the coping stone contained gaps in the mortar and along the top of the roof, presenting opportunity for bats to enter and exit. Other large openings were present where the wall and roof had partially collapsed. The roof was pitched with skylights.</p> <p>No loft space was identified in the main building. The end of building had been separated to contain a loft area that could support void dwelling species such as brown long-eared bat.</p> <p>Swallows were observed using the buildings.</p> <p>Overall the building presents an array of different roosting opportunities for both crevice dwelling and void dwelling bats; this is further supported by droppings that were found throughout. The building is therefore assessed as having high potential to support roosting bats.</p> <p>Barn owl feather was found, and lots of pellets located. Fairly dark in colour, so quite recent. Located underneath the ridge of the roof.</p>	<p>High roost potential</p>	

Building/ PRF ID	Notes	Bat suitability	Location of PRF/ access
<p>5 PRF 4 &amp; PRF 5</p>	<p>The building was built in the 1600s, with wooden boards and a rendered finish in a Tudor style added later.</p> <p>The building had a complex roof with multiple pitches and loft space. The roof appeared to be in good repair.</p> <p>Lead flashing located around the chimney contained gaps, as did some of the wooden boards at the front of the building.</p> <p>The building windows were well sealed, as was the cladding located on the front of the building.</p> <p>There was a fabricated conservatory/ sunroom and single storey extension at the back of the house in good condition. No internal assessment was conducted due to a lack of access granted.</p> <p>No droppings were found during the survey.</p>	<p>Moderate</p>	 <p>The top photograph shows a chimney on a tiled roof with a red arrow pointing to a gap in the lead flashing at the junction of the chimney. The bottom photograph shows a close-up of a wooden beam on the roof with a red arrow pointing to a gap between the beam and the roof structure.</p>

Building/ PRF ID	Notes	Bat suitability	Location of PRF/ access
			
7	A well-sealed metal container, with no potential for roosting bats.	Negligible	

## 4 References

Andrews, H., and Pearson, L. (2022). *Review of empirical data in respect of emergence and return time reports for the UK's native species*. Exeter, Pelagic Publishing.

Bat Conservation Trust (2019) *UK Bats*. Available at: <https://www.bats.org.uk/about-bats/what-are-bats/uk-bats> [Accessed 22/08/2025].

Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edition). The Bat Conservation Trust, London.

RammSanderson Ltd (2025) Tree Survey at Kibblesworth 9.9MW Solar Development (Coltsdene Solar Farm). Report Reference: RSE\_8986

Russ, J. (2012) *British Bat Calls: A Guide to Species Identification*. Pelagic Publishing.

## 5 Figures

Figure 1: Static detector locations

Figure 2a: Nighttime bat walkover survey results – spring

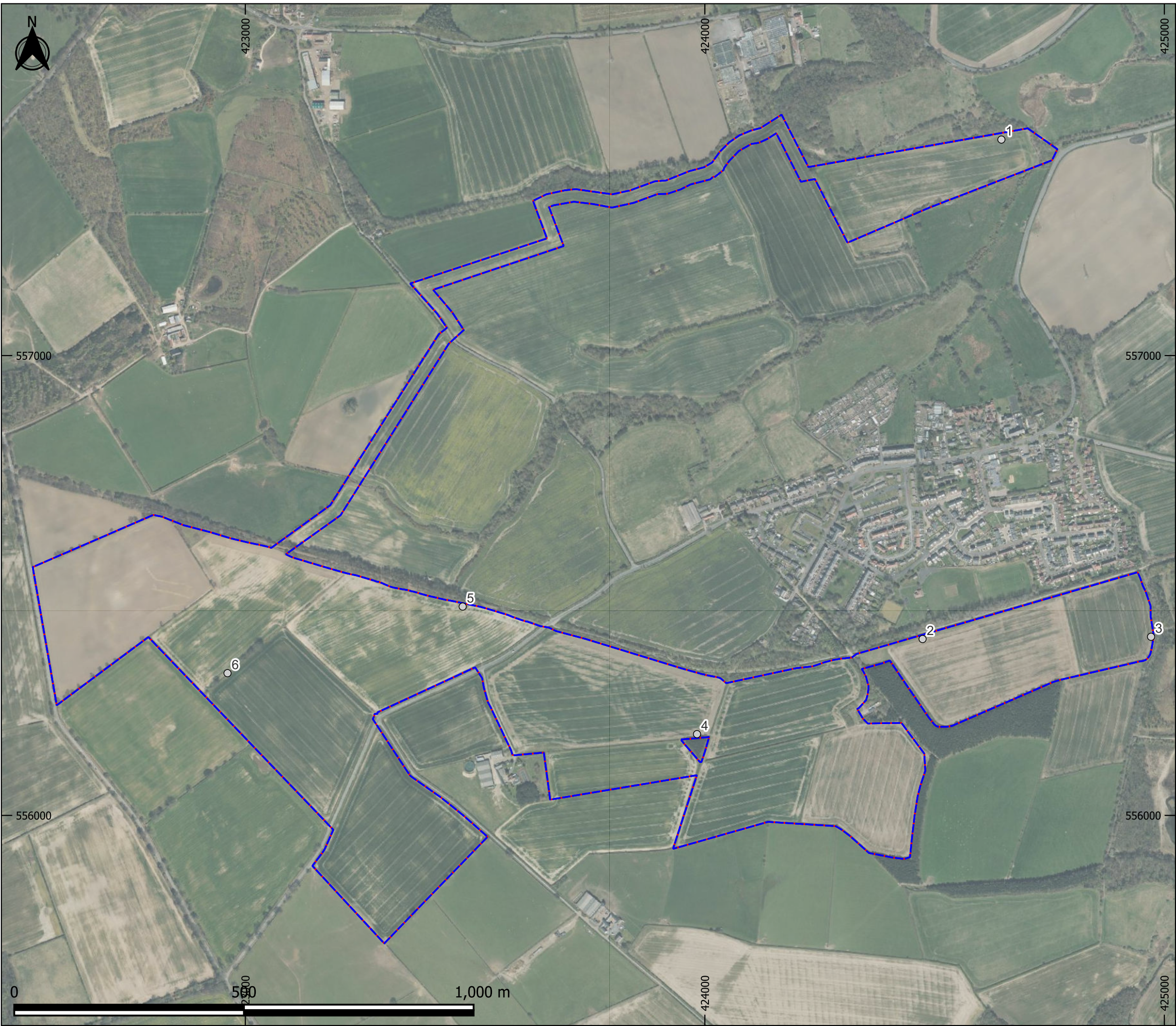
Figure 2b: Nighttime bat walkover survey results – summer

Figure 2c: Nighttime bat walkover survey results – autumn

Figure 3: Ground-level tree assessment survey results

Figure 4: Preliminary roost assessment survey results

(overleaf)



- Legend
- Static Point
  - ▭ Survey boundary
  - ▭ Site boundary



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PROJECT TITLE  
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 PROPOSAL

DRAWING TITLE  
 Figure 1: Static detector locations

DATE: 27/11/2025      CHECKED: NE      SCALE: 1:7,880  
 DRAWN: SP      APPROVED: HS      VERSION: 1.0

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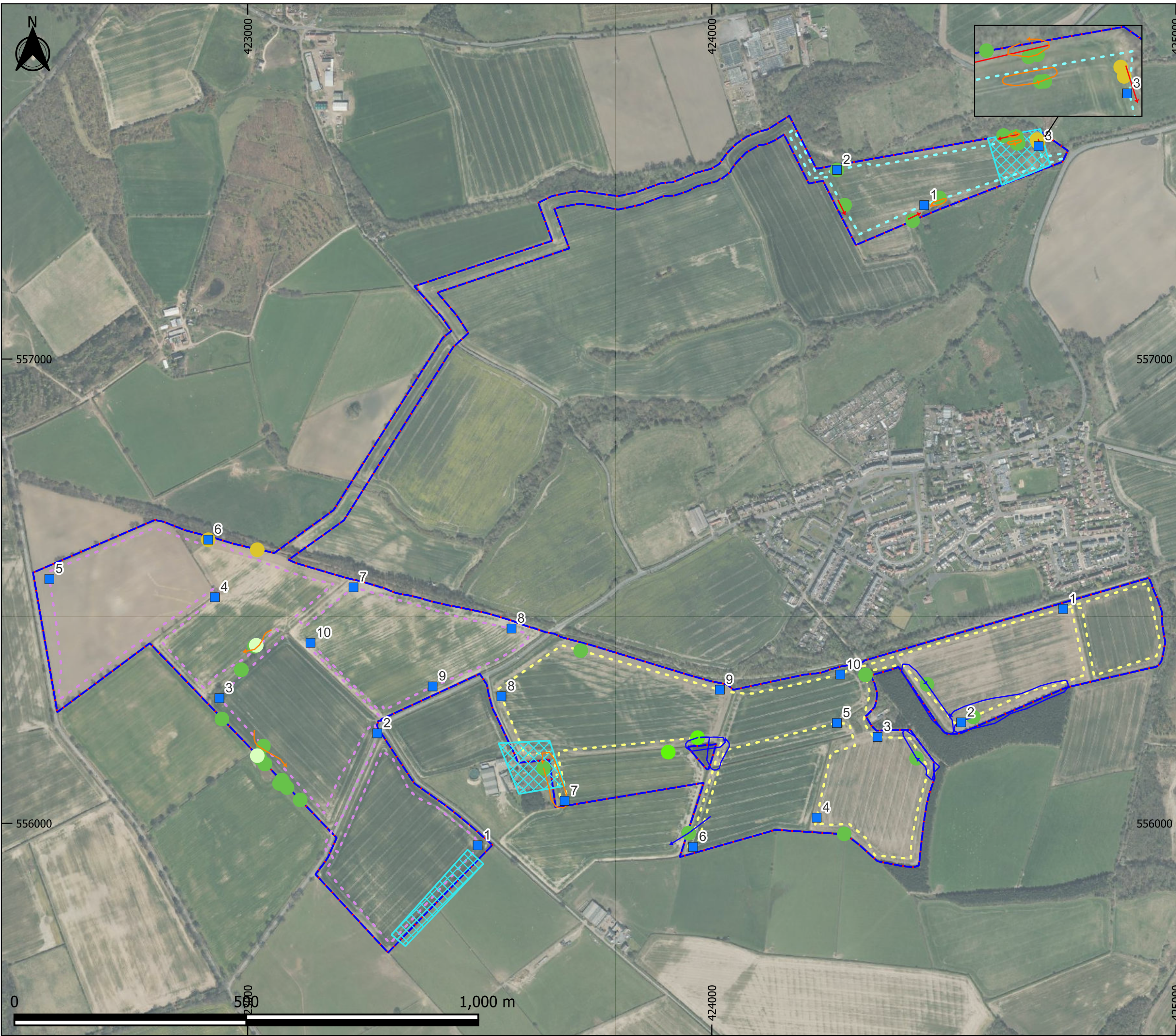
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 Area measurements for indicative purposes only.

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Sources: BSG Ecology survey data



- Legend**
- Initial 30 minute observation areas
  - Stopping Point
  - Bat Transect Passes**
  - Noctule bat
  - Common pipistrelle bat
  - Common or Soprano pipistrelle
  - Soprano pipistrelle bat
  - Flight
  - Foraging flight
  - Commuting flight
  - Survey transect**
  - NBW Route 1
  - NBW Route 2
  - NBW Route 3
  - Survey boundary
  - Site boundary

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**Figure 2c: Nighttime bat walkover survey results – autumn**

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 DRAWN: SP      APPROVED: HS      VERSION: 1.0

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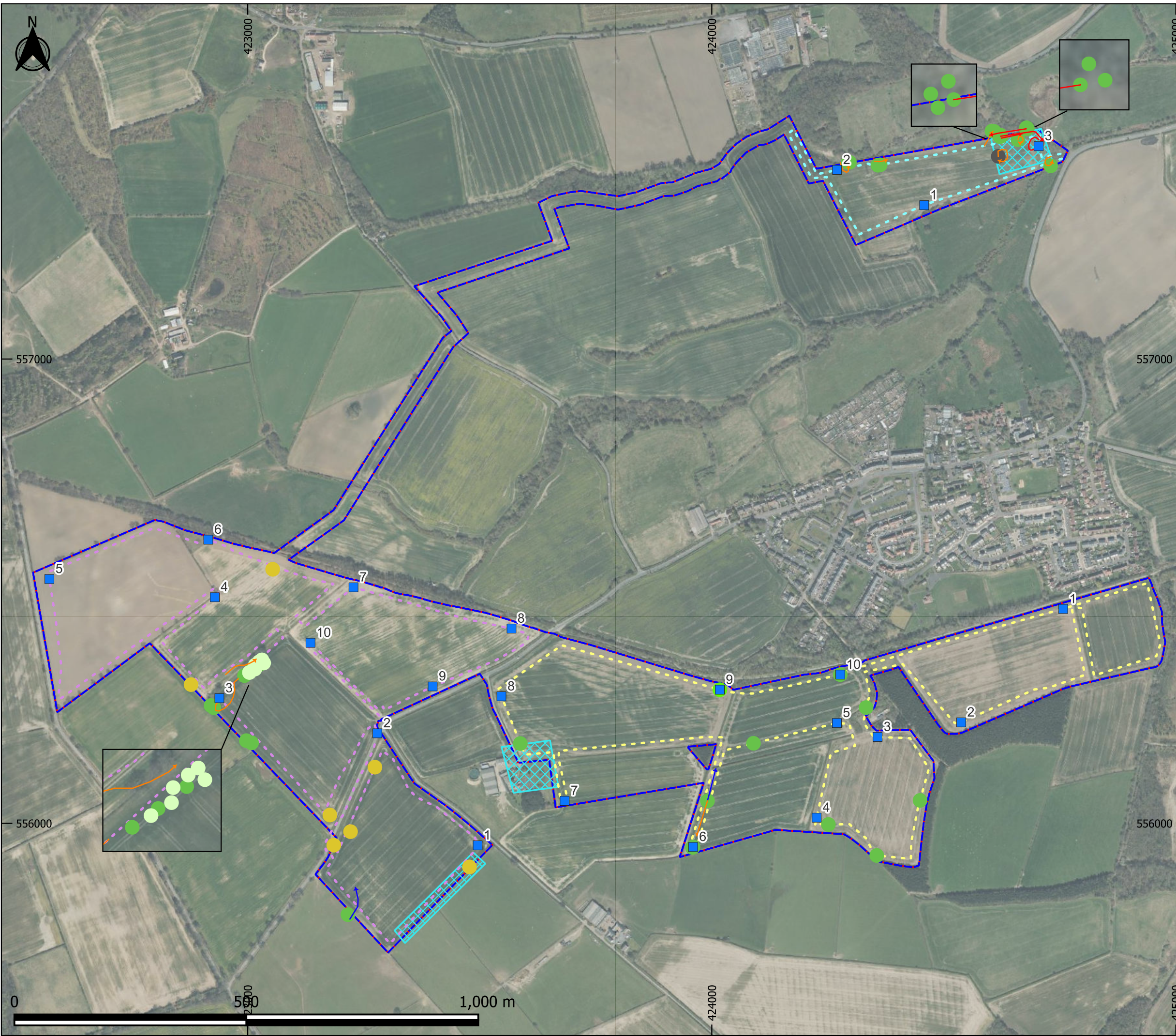
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Graphics Ref. No.: 131080



- Legend**
- Initial 30 minute observation areas
  - Stopping Point
- Bat Transect Passes**
- Noctule bat
  - Common pipistrelle
  - Common or Soprano pipistrelle
  - Soprano pipistrelle bat
  - Unidentified Bat
- Flight**
- Flight
  - Foraging flight
  - Commuting flight
- Survey transect**
- NBW Route 1
  - NBW Route 2
  - NBW Route 3
  - Survey boundary
  - Site boundary



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**KIBBLESWORTH / COLTSDENE SOLAR PROPOSAL**

DRAWING TITLE  
**Figure 2b: Nighttime bat walkover survey results – summer**

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 DRAWN: SP      APPROVED: HS      VERSION: 1.0

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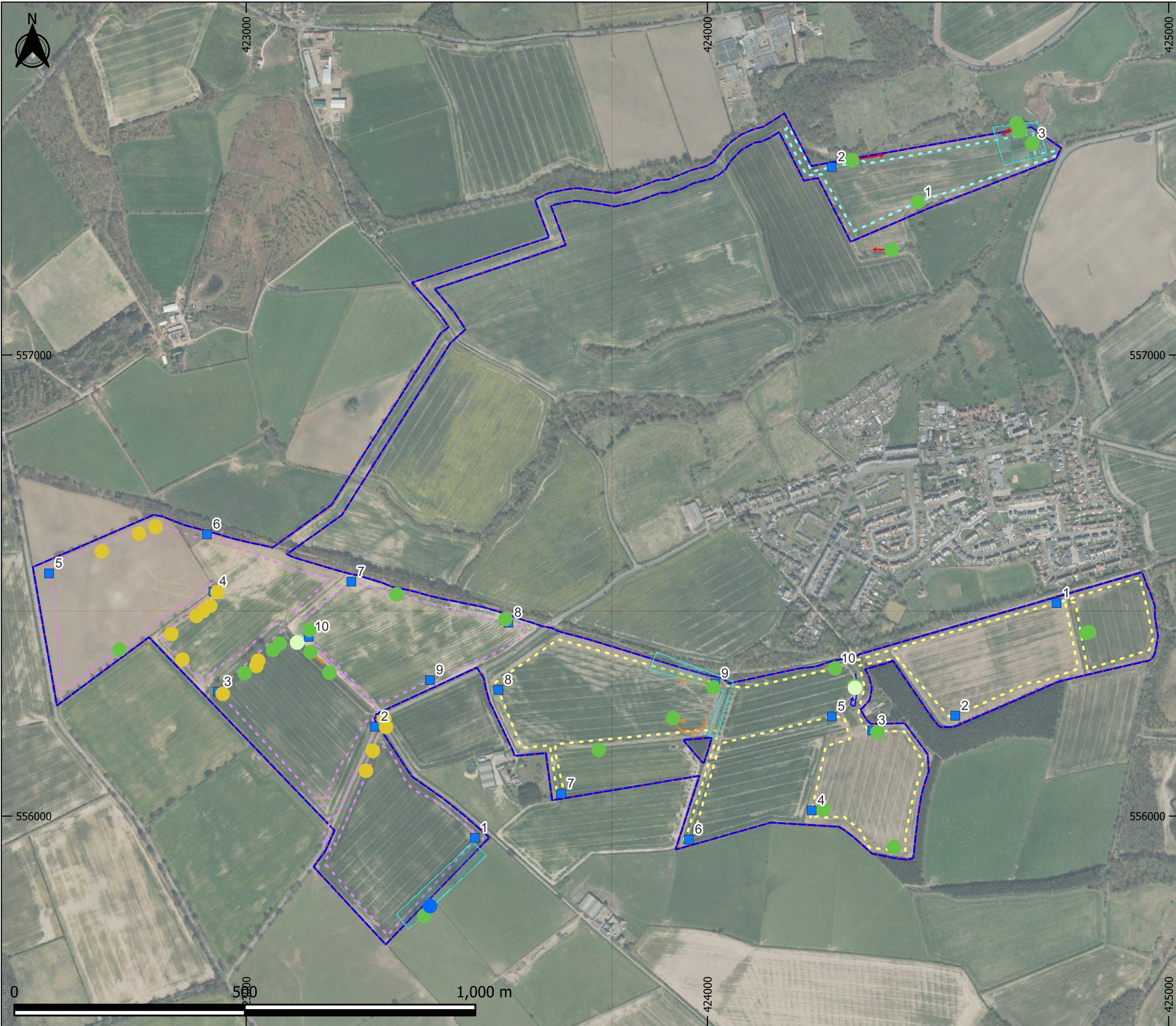
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- Legend**
- Initial 30 minute observation areas
  - Stopping Point
  - Bat Transect Passes**
  - Noctule bat
  - Common pipistrelle bat
  - Soprano pipistrelle bat
  - Brown long-eared bat
  - Flight
  - Foraging flight
  - Commuting flight
  - Survey transect**
  - NBW Route 1
  - NBW Route 2
  - NBW Route 3
  - Survey boundary
  - Site boundary



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PROJECT TITLE  
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DRAWING TITLE  
**Figure 2a: Nighttime bat walkover survey results – spring**

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 DRAWN: SP      APPROVED: HS      VERSION: 1.0

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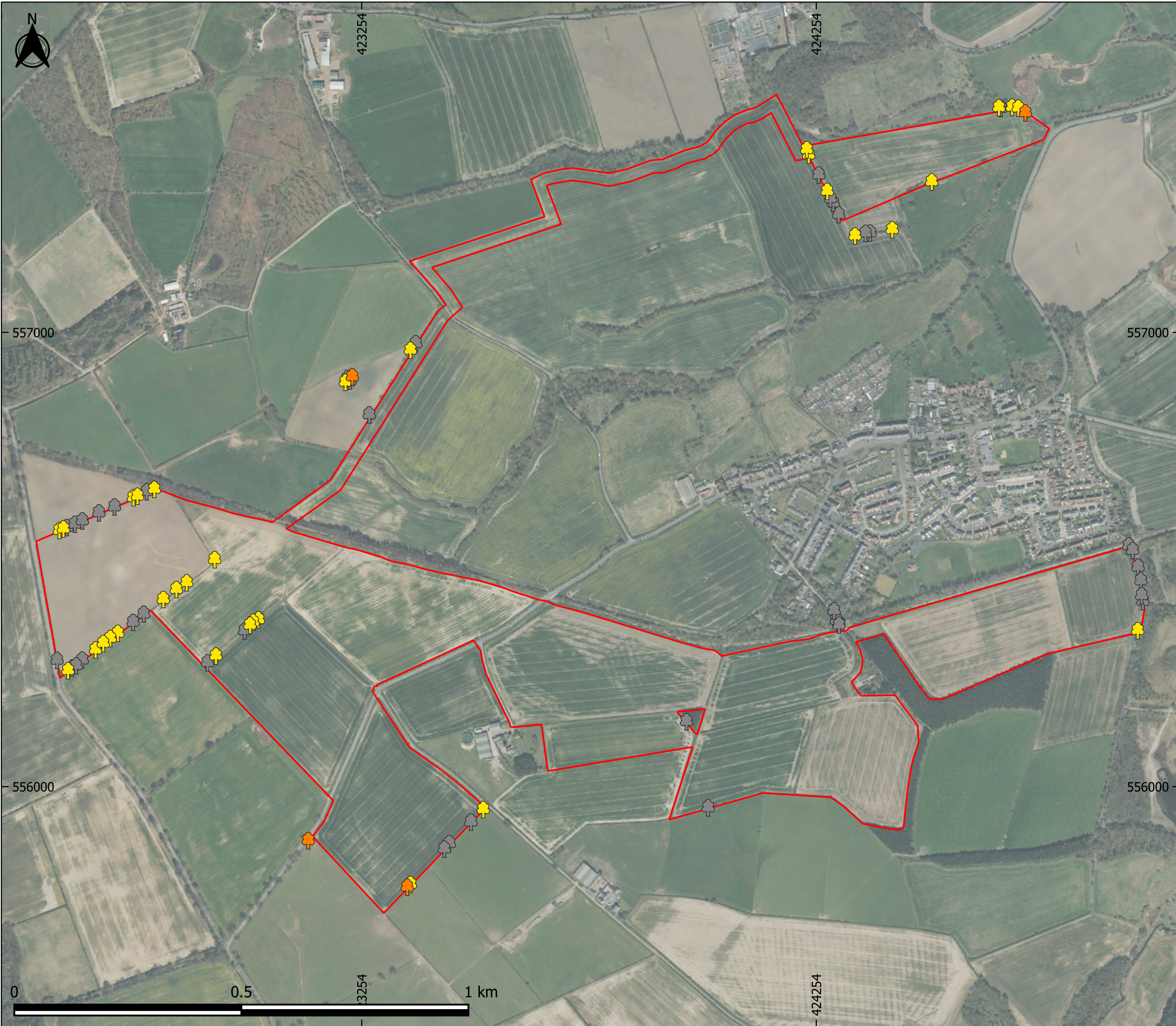
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Legend

Site boundary

Ground Level Tree Assessment

PRF-None

PRF-I

PRF-M



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DRAWING TITLE  
Figure : Ground Level Tree Assessment

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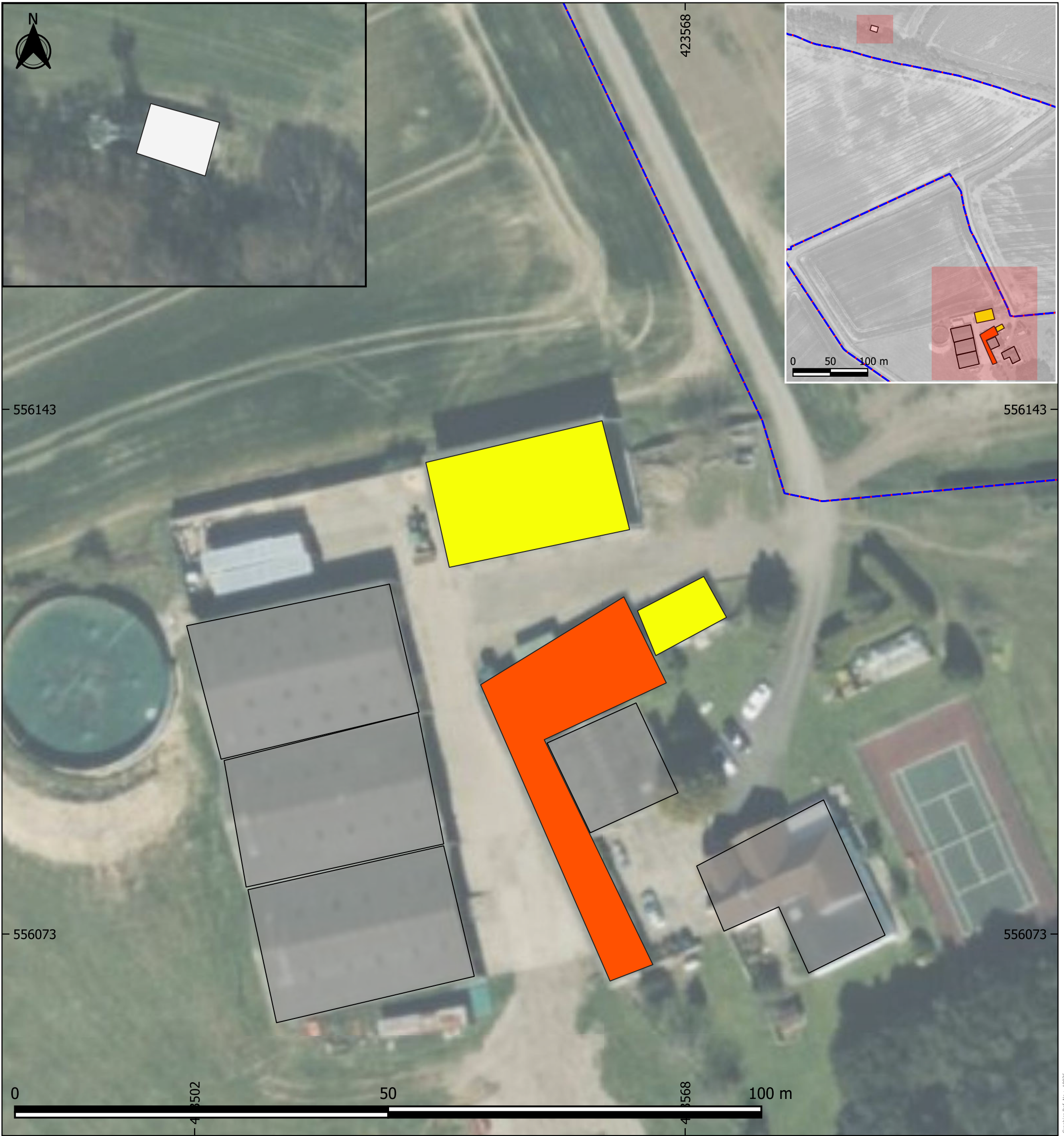
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Legend

- Site boundary
- Survey boundary

Buildings

- PRF - None
- PRF - Negligible
- PRF - Medium
- PRF - Unknown/Not Recorded

## Appendix 1: Activity survey details

### *NBW survey dates and surveyors*

Survey	Date	Surveyors
Spring	03/06/2025	Claire Dewson, Hannah Shone, Harry Glass, Jennifer Peacock, Paul Dixon
Summer	22/07/2025	Hannah Shone, Jennifer Peacock, Matthew Breadin, Paul Dixon, Alex Thompson
Autumn	18/09/2025	Hannah Shone, Harry Glass, Jennifer Peacock, Paul Dixon, Robert Permain

### *NBW weather conditions*

Survey	Start time	Start weather	End time	End weather
Spring	21:15	13°C, dry, 30% cloud cover, BF 1.	22:54	10°C, dry, 100% cloud cover, BF 0.
Summer	21:27	18°C, dry, 50% cloud cover, BF 2	23:30	16°C, dry, 50% cloud cover, BF 3
Autumn	19:17	18°C, dry, 70% cloud cover, BF 1	21:17	18°C, 80% cloud cover, BF 4, intermittent light drizzle.

### *Static detector survey dates*

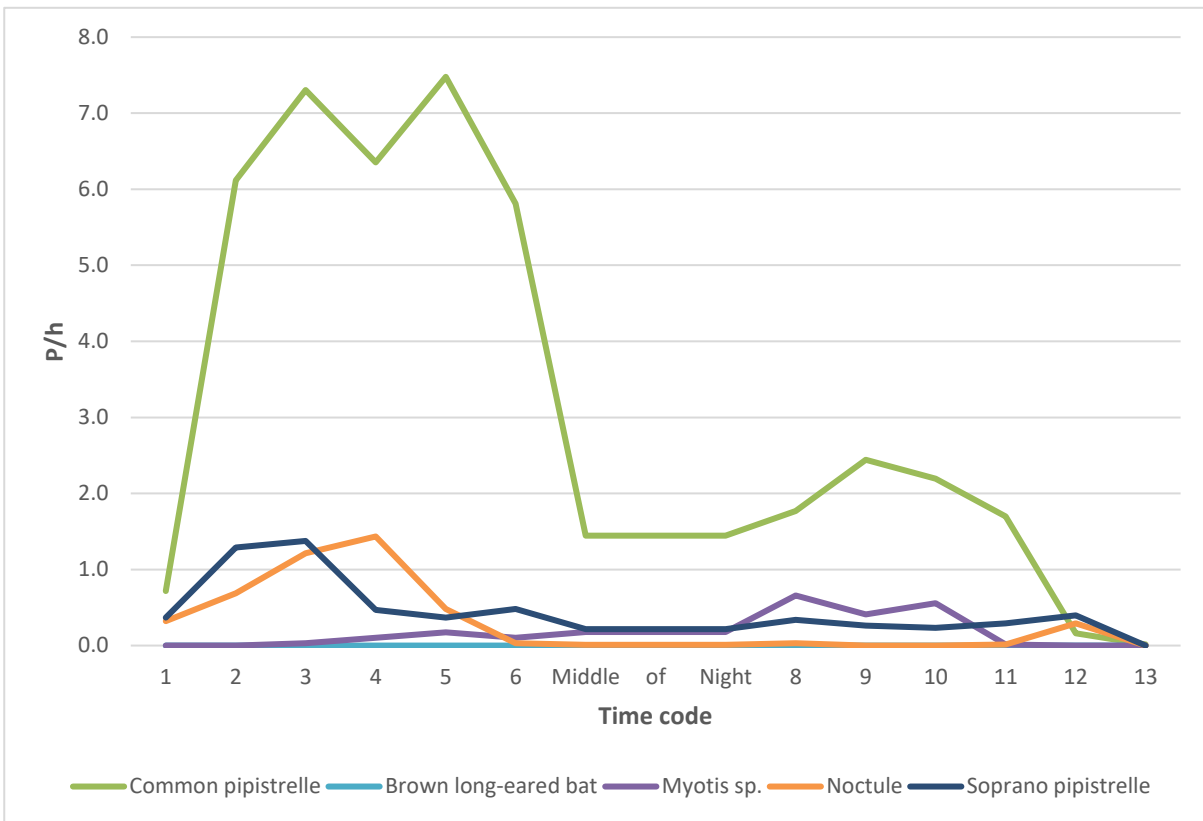
Monitoring period	Dates	Total number of nights
April	14/04/2025 – 19/04/2025	5
May	13/05/2025 – 18/05/2025	5
June	13/06/2025 - 18/06/2025	5
July	17/07/2025 – 22/07/2025	5
August	12/08/2025 – 17/08/2025	5
September	11/09/2025 – 16/09/2025	5
October	14/10/2025 – 19/10/2025	5

**Static detector constraints**

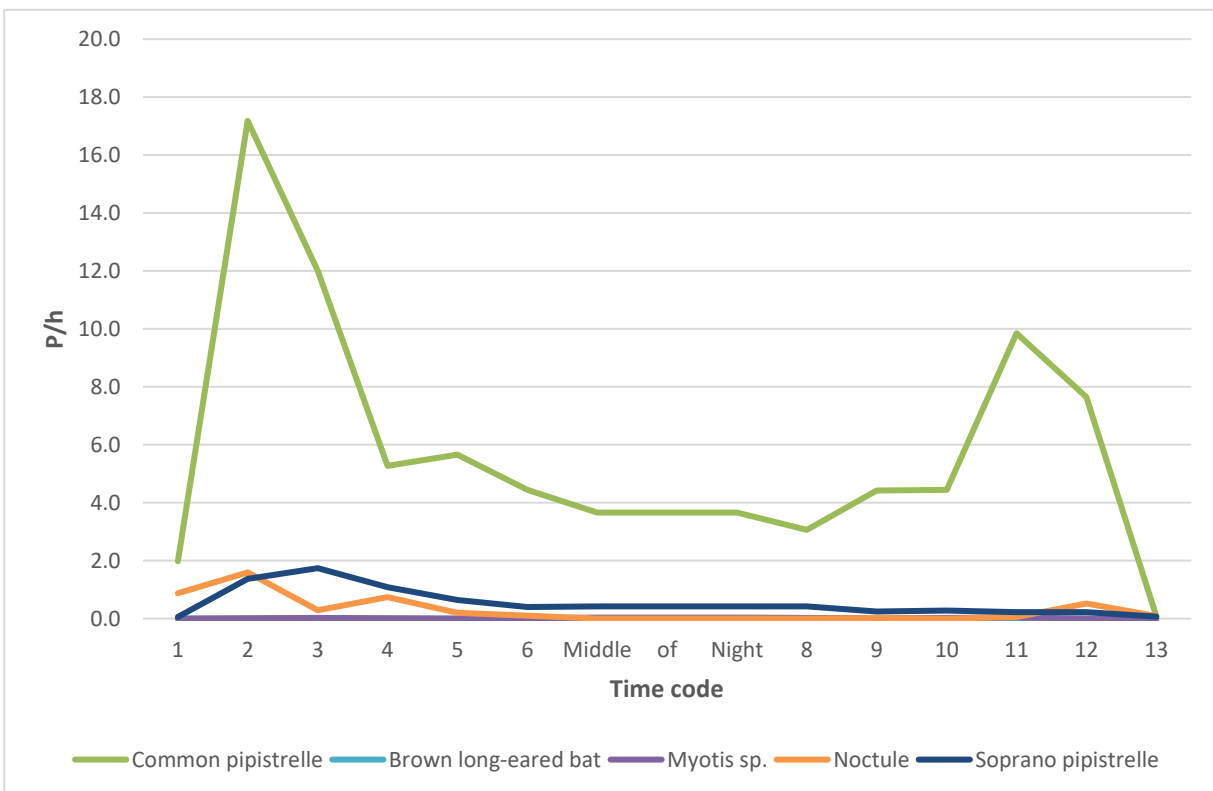
Monitoring period	Detector	Activation delay (minutes)
July	1	5
	2	5
	3	0
	4	5
	5	5
	6	0
September	1	10
	2	10
	3	5
	4	0
	5	0
	6	5
October	1	0
	2	5
	3	10
	4	5
	5	0
	6	10

## Appendix 2: Bat passes from static detector surveys

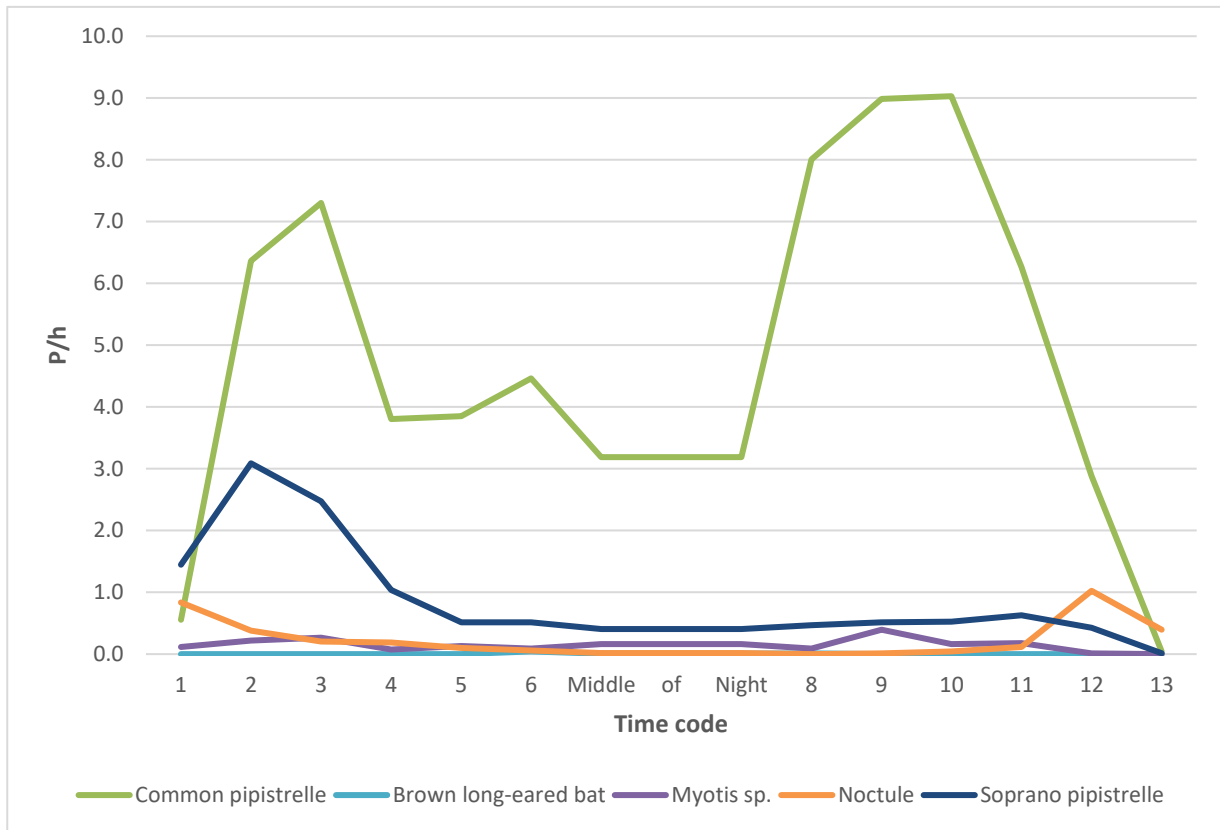
### Bat passes per time code: Location 1



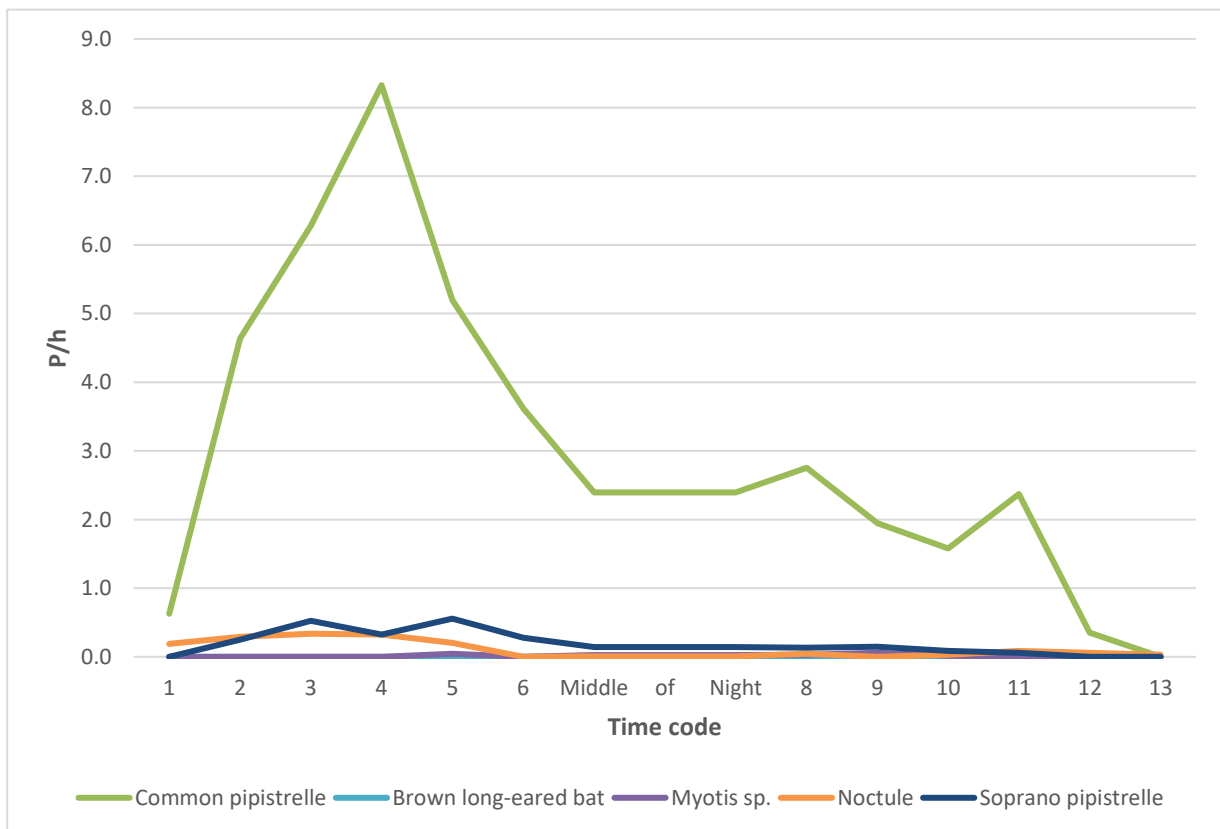
### Bat passes per time code: Location 2



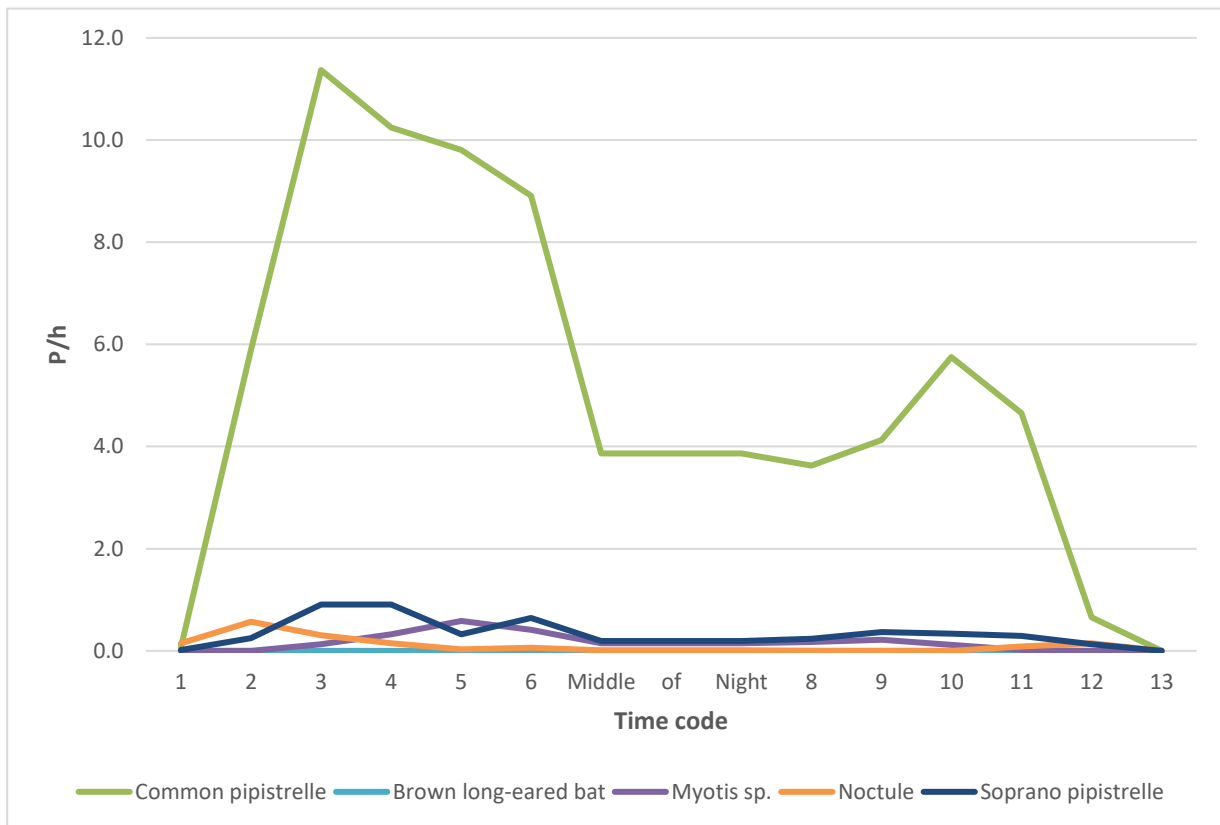
**Bat passes per time code: Location 3**



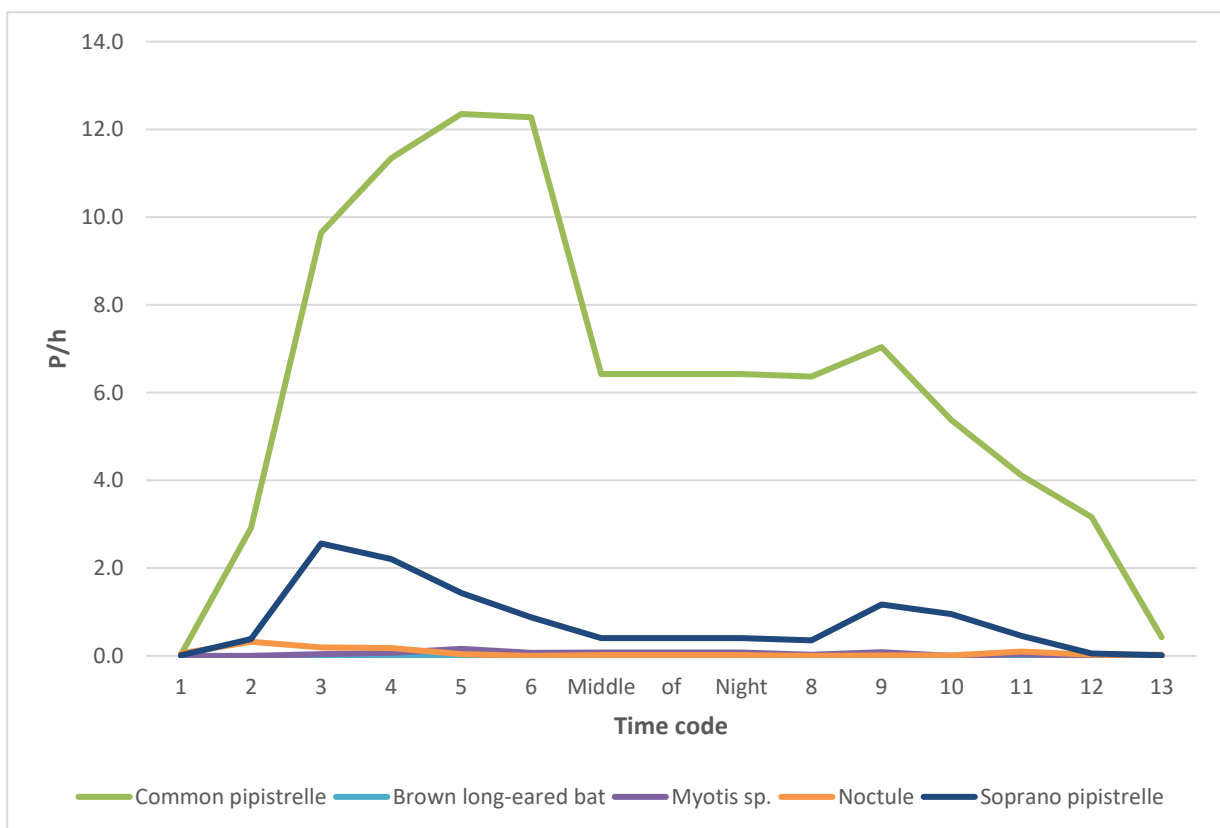
**Bat passes per time code: Location 4**



**Bat passes per time code: Location 5**



**Bat passes per time code: Location 6**



## Time codes:

0 – Before sunset

1 - 0-20 mins after sunset

2 - 21-40 mins after sunset

3 - 41-60 mins after sunset

4 - 61-80 mins after sunset

5 - 81-100 mins after sunset

6 - 101-120 mins after sunset

7 - Night period

8 - 120-101 mins before sunrise

9 - 100-81 mins before sunrise

10 - 80-61 mins before sunrise

11 - 60-41 mins before sunrise

12 - 40-21 mins before sunrise

13 - 0-20 mins before sunrise

### Appendix 3: Ground level tree assessment results

Tree reference ID	Species	Status	Approximate height (m)	Approximate DBH (cm)	PRF description	PRF suitability
1-A	Beech <i>Fagus sylvatica</i>	Alive	20	80	Unsuitable.	None
1-B	Beech <i>Fagus sylvatica</i>	Alive	20	80	Snapped limb at 4.5 m height; unable to fully assess from ground.	PRF-M
1-C	Beech <i>Fagus sylvatica</i>	Alive	20	80	Unsuitable.	None
1-D	Beech <i>Fagus sylvatica</i>	Alive	20	80	Isolated knot holes that may extend into limbs / main stem.	PRF-I
2-A	Lombardy poplar <i>Populus nigra 'Italica'</i>	Alive	15	80	Ivy clad; potential for features but unable to fully assess from ground level.	N/A
2-B	Lombardy poplar <i>Populus nigra 'Italica'</i>	Alive	17	80	Ivy clad; potential for features but unable to fully assess from ground level.	N/A
2-C	English oak <i>Quercus robur</i>	Alive	13	80	No features evident.	None
2-D	Ash <i>Fraxinus excelsior</i>	Dead	6	110	Dead, large trunk rot and cavities but too exposed for bats.	None
2-E	English oak <i>Quercus robur</i>	Alive	9	110	Isolated knot holes that may extend into limbs / main stem.	PRF-I
2-F	English oak <i>Quercus robur</i>	Alive	14	100	Hollow dead limbs on northern aspect, 2-3 m high PRF-I	PRF-I
3-A	English oak <i>Quercus robur</i>	Alive	9	90	Compression feature on dead limb c. 5 m high on south aspect. PRF-I	PRF-I
3-B	English oak <i>Quercus robur</i>	Alive	9	80	Cracked deadwood on south facing limbs. PRF-I	PRF-I
3-C	Ash <i>Fraxinus excelsior</i>	Dead	10	70	Bracket fungus present. Knot hole on south aspect of main stem c. 4 m high	PRF-I

Tree reference ID	Species	Status	Approximate height (m)	Approximate DBH (cm)	PRF description	PRF suitability
3-D	English oak <i>Quercus robur</i>	Alive	18	110	Open socket on southern limb may extend into limb c. 3 m high PRF-I	PRF-I
3-E	English oak <i>Quercus robur</i>	Alive	9	75	Cavities extending into northern limb at 2 m and downwards into main stem at 1 m.	PRF-I
T2-U	Ash <i>Fraxinus excelsior</i>	Alive	6	53	Bracket fungus present throughout main stem and larger branching. Major deadwood within canopy. 1m Vertical crack in main stem on north west aspect approx. 5 m high.	PRF-I
T4-A2	English oak <i>Quercus robur</i>	Alive	8	75	Located behind barbed wire fence. Typical amount of deadwood for species and age. Rot and cavity at 3 m on east side but too exposed for bats.	None
T5-B2	English oak <i>Quercus robur</i>	Alive	6	70	Frequent large deadwood within canopy.	None
T6-A2	English oak <i>Quercus robur</i>	Alive	9	70	Minor snapped hanger at 3 m. Details per arb assessment.	None
T7-C1	Ash <i>Fraxinus excelsior</i>	Alive	10	30	Minor bark wound at 1.5 m on eastern aspect of main stem.	None
T16-B2	Ash <i>Fraxinus excelsior</i>	Alive	7	30	Located in hedgerow. Historical flail damage with minor snapped branching on northern aspect to 3 m.	None
T20-C1	Ash <i>Fraxinus excelsior</i>	Alive	7	36	Branch wounds of field side at 3-4 m due to mechanical damage. Features sealed over, no potential.	None
T41-C2	Sycamore <i>Acer pseudoplatanus</i>	Alive	8	26	Compression fork from base.	None
T44-A2	English oak <i>Quercus robur</i>	Alive	10	89	Minor bark wound at 1m of eastern aspect of main stem. Some minor snapped branching in lower canopy. Open crevice between 2 and 3 m on southern aspect of main stem. Crevice on eastern aspect potential.	PRF-I
T45-B2	Ash <i>Fraxinus excelsior</i>	Alive	9	65	Minor deadwood.	None
T46-B2	Ash <i>Fraxinus excelsior</i>	Alive	13	65	Large basal flare to 1.5 m. Features sealed over. No potential	None
T47-B2	English oak <i>Quercus robur</i>	Alive	13	60	Tear out on southern aspect of base to 3 m. Some large deadwood in canopy. Features too exposed for bat potential.	None

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T48-A2	English oak <i>Quercus robur</i>	Alive	11	92	Fair structure, form and vitality. Snapped limb at 4 m high on north western aspect, features continues into limb.	PRF-I
T49-B2	English oak <i>Quercus robur</i>	Alive	9	65	Open wound from base to 4 m on southern aspect of main stem, starting to occlude. Snapped branching at 2.5 m on southern aspect of canopy. Open wound has PRF-M	PRF-M
T50-U	Ash <i>Fraxinus excelsior</i>	Alive	9	69	Stem and large branching heavily decayed. Frequent large deadwood present in canopy. Numerous small crevices in main stem and limbs from 2 m.	PRF-M
T51-A2	English oak <i>Quercus robur</i>	Alive	11	87	Historic large pruning points at 3 m north west. Features sealed over, no potential.	None
T53-A2	Ash <i>Fraxinus excelsior</i>	Alive	13	117	Fused stem from base with large hole. Potential dead stub with crack that may continue into southern limb at 4 m height on southern aspect, unable to assess from ground. No other features.	PRF-I
T54-A2	English oak <i>Quercus robur</i>	Alive	9	75	Historic large pruning point at 3 m north west.	None
T55-A2	Beech <i>Fagus sylvatica</i>	Alive	9	81	Large piece 100 mm of deadwood within central canopy at 3m. Fissure at deadwood limb.	PRF-I
T56-A2	English oak <i>Quercus robur</i>	Alive	9	81	Historic large pruning point at 3 m west. Typical amount of moderate and minor deadwood. PRF-I's present at pruning points and decayed limbs.	PRF-I
T57-A2	Beech <i>Fagus sylvatica</i>	Alive	15	120	300 mm decaying stub on southern aspect at 2 m. Decaying underside of branch on southern aspect at 4 m. Large branching fusing throughout. Features as described. Many PRF-I's under lifting bark on decayed limbs.	PRF-I
T59-U	Ash <i>Fraxinus excelsior</i>	Alive	10	75	Large open hollow at base accounting for approx 75% of surface area of cross section of stem. Open branch socket cavity at 2 m, major internal decay. Socket cavity likely unsuitable but needs further assessment. 2 cm diameter Knot hole on east main stem 2m high PRF-I. Snapped limb at 5 m with some gaps needs further assessment	PRF-I
T60-C2	Ash <i>Fraxinus excelsior</i>	Alive	7	50	Large historic pruning points on western aspect. Cavity at main fork continues down with no cover likely too exposed but further assessment required.	PRF-I

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T61-C2	Ash <i>Fraxinus excelsior</i>	Alive	8	74	Fused stems at base with compression fork. Cavity at union. Minor hanger within canopy. Historic pruning points on west side of canopy to 3 m. Knot holes PRF-I on south side. Cavities and fissures on north limb.	PRF-I
T62-C2	Ash <i>Fraxinus excelsior</i>	Alive	8	45	Large snapped dead branch west at 2.5 m. Historic pruning points on west side of canopy to 4m. Snapped branch on north side with potential. PRF-I. Further survey.	PRF-I
T63-B2	Ash <i>Fraxinus excelsior</i>	Alive	9	63	Historic pruning points on west side of canopy to 4 m.	None
T64-C3	English oak <i>Quercus robur</i>	Alive	4	40	Heavily decayed short stem. Historic pruning points on west side of canopy at 3 m.	None
T65-C2	English oak <i>Quercus robur</i>	Alive	5	47	Occluding longitudinal crack from base to 1.5 m on northern aspect. Large historic pruning points throughout. Potential cavity at snapped limb on north side at 3 m, further survey.	PRF-I
T66-C2	English oak <i>Quercus robur</i>	Alive	9	56	Minor cavity at base on western aspect to 0.5 m. 200 mm branch tear out at 4 m on western aspect. Large pruning points on western aspect at 2.5 m. Cracks in branch tear out described above.	PRF-I
T67-B2	English oak <i>Quercus robur</i>	Alive	11	65	Historic pruning points on west side of canopy to 3 m. 3 cm Hole in pruned limb on east side 2 m high.	PRF-I
T68-B2	English oak <i>Quercus robur</i>	Alive	11	85	Historic pruning points on west side of canopy to 3 m. Decaying 250 mm branch at 2 m of northern aspect. Decaying deadwood northern aspect several PRF-I further survey.	PRF-I
T69-A2	English oak <i>Quercus robur</i>	Alive	8	90	Historic pruning points on west side of canopy to 3 m.	None
T70-C2	English oak <i>Quercus robur</i>	Alive	8	80	Deadwood streak from base to 2 m with internal hollowing on western aspect. Historic pruning points on west side of canopy to 3 m. Deadwood streak continues into main stem. But too low to be viable.	None
T71-B2	Ash <i>Fraxinus excelsior</i>	Alive	13	95	Historic pruning points to 4 m.	None
T73-C2	English oak <i>Quercus robur</i>	Alive	9	36	Pruning wounds on north aspect. Trunk cavity at base to 2 m on northern aspect. Cavity as described PRF-I.	PRF-I

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T77-C2	English oak <i>Quercus robur</i>	Alive	10	38	Pruning wounds on eastern aspect.	None
T78-C2	English oak <i>Quercus robur</i>	Alive	11	66	Pruning wounds on southern aspect. Some lifted bark on pruned limb on south aspect 3 m high.	PRF-I
T79-C2	Ash <i>Fraxinus excelsior</i>	Alive	11	71	Historic pruning wounds present. Open sockets at south aspect 4 m height.	PRF-I
T80-C2	English oak <i>Quercus robur</i>	Alive	10	30	Minor bark wound at 1.5 m on eastern aspect of main stem.	None
T81-C2	English oak <i>Quercus robur</i>	Alive	7	44	Pruning wounds on southern aspect. Trunk cavity at base to between 1 and 2 m on western aspect.	None
T82-C2	English oak <i>Quercus robur</i>	Alive	7	37	Pruning wounds on southern aspect. Trunk cavity at main union at 1 m.	None
T83-C2	English oak <i>Quercus robur</i>	Alive	14	50	Pruning wounds on southern aspect. Trunk cavity at base to between 1 and 2 m on southern aspect.	None
T84-C2	English oak <i>Quercus robur</i>	Alive	14	50	Pruning wounds on southern aspect. Trunk cavity at base to between 1 and 2 m on western aspect.	None
T85-B2	Ash <i>Fraxinus excelsior</i>	Alive	16	77	Pruning wounds on southern aspect. Dead limb on southern aspect with knot hole and other PRFs on limbs at 4 m on southern aspect. Further survey	PRF-I
T86-B2	English oak <i>Quercus robur</i>	Alive	15	50	Pruning wounds on southern aspect. Small PRF's-I with potential at southern limb 3 m high.	PRF-I
T87-B2	English oak <i>Quercus robur</i>	Alive	18	64	Pruning wounds on southern aspect.	None
T91-C2	Ash <i>Fraxinus excelsior</i>	Alive	10	49	N/A	None
T94-B2	English oak <i>Quercus robur</i>	Alive	8	90	N/A	None
T95-C2	Ash <i>Fraxinus excelsior</i>	Alive	10	49	N/A	None
T106-B2	English oak <i>Quercus robur</i>	Alive	12	75	N/A	None

Tree reference ID	Species	Status	Approximate height (m)	Approximate DBH (cm)	PRF description	PRF suitability
T114-C3	English oak <i>Quercus robur</i>	Alive	8	47	N/A	None
T115-C2	English oak <i>Quercus robur</i>	Alive	8	45	N/A	None
T116-C3	Ash <i>Fraxinus excelsior</i>	Alive	19	72	N/A	None
T117-C3	English oak <i>Quercus robur</i>	Alive	10	56	N/A	None
T118-C2	English oak <i>Quercus robur</i>	Alive	8	58	N/A	None
T119-C2	English oak <i>Quercus robur</i>	Alive	8	56	N/A	None
T121-C2	English oak <i>Quercus robur</i>	Alive	8	58	N/A	None
T122-B2	Ash <i>Fraxinus excelsior</i>	Alive	19	75	N/A	None
T123-A2	English oak <i>Quercus robur</i>	Alive	19	77	N/A	None
T150-U	Hawthorn <i>Crataegus monogyna</i>	Dead	3	10	N/A	None
T152-C3	English oak <i>Quercus robur</i>	Alive	6	72	Significant main stem cavity between 2 and 4 m.	None